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AND

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AND

THE BEST METHODS, WITH THE MOST RECENT IMPROVEMENTS, POINTED OUT.

BY RICHARD PARKINSON,

OF DONCASTER IN THE COUNTY OF YORK.

IN TWO VOLUMES.

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TO

T. W. COKE, Eſq. M. P.

SIR,

TO Dedicate, with propriety, a Work which treats of one of the moſt uſeful Branches of Human Induſtry and Speculation, ſomething more is required to exiſt in the object of the Addreſs than mere Wealth and nominal Superiority.

Liberality of Sentiment, extenſive Knowledge, and marked Philanthropy are the beſt claims to that deference and reſpect which

which the Good afford with pleaſure, and the Bad cannot withhold in juſtice.

Known as you are, throughout the County of Norfolk, for your enviable poſſeſſion of every one of theſe qualities, and equally diſtinguiſhed by your generous diffuſion of an improved inheritance, I have, with your permiſſion, inſcribed to you the following Eſſay upon Agriculture, which you will receive with pleaſure, becauſe it may be uſeful to the Community.

I have the honour to be,

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And obedient, humble ſervant,

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Webſter, Mr. Joſeph, Levels, Yorkſhire
Winn, Sir Rowland, Bart. Noſtell, Yorkſhire
Wentworth, G. W. Eſq. Wooley, Ditto.

White, Mr. W. Norwich
Wrightſon, W. Eſq. Cuſworth, Ditto
Wroughton, Geo. Eſq. Adwick, Ditto
Woodcock, T. Eſq. Doncaſter, Ditto
Wilkinſon, E. Eſq. Potterton Lodge, Ditto
Wilſon, C. Eſq. Elmſall Lodge, Ditto
Woodyeare, John, Eſq. Crookhill, Ditto
Walker, Mr. W. Doncaſter, Ditto
Wilkinſon, Rev. W. Graſby, Lincolnſhire
Whitworth, Mr. G. Beelſby, Ditto
Walls, Rev. E. Boothby, Ditto
Wood, Mr. R. Tathwell, Ditto
Wood, W. Eſq. Thoreſby, Ditto
Wright, Mr. Philip, Spilſby, Ditto
Waldegrave, Rt. Eſq. Bennington, Ditto
Watſon, Edward, Eſq. Kirton Fen, Ditto
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Waller, T. M. Eſq. Norwich
Waite, Mr. No. 2, Old Bond Street, London
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Walker, J. E. Eſq. Lynn, Norfolk
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INTRODUCTION.

THINKING it neceſſary, for the ſatiſfaction of thoſe who may peruſe the following ſheets, to ſay ſomething of myſelf, and of the means by which I acquired that knowledge of farming in general which is now ſubmitted to a candid Public; I ſit down to write this Introduction, which contains a conciſe account of my own life, ſo far as reſpects the different occupations of a farmer, and of a breeder of all ſorts of ſtock.

My father rented a farm called ABY-GRANGE, ſituate near Alford, in the county of Lincoln, which conſiſted of about 400 acres; a clay ſoil, much of it very

poor land, chiefly uſed for the purpoſe of breeding ſheep, horſes, beaſts, pigs, &c.

My father was famed for the beſt breed of black horſes—horſes of moſt action and greateſt power. The horned cattle were of a very good mixed breed, well inclined to feed. We uſed to draw eight pair of oxen to do the farming buſineſs, and kept what may be termed a large dairy. The ſheep, at one time, if not the beſt, were certainly not much inferior to the beſt in this iſland. I ſpeak of a period long before Mr. Bakewell's famous breed, which is ſuppoſed to have been produced from the ſtock of Mr. STOW, of Bilſby, about four miles from the place of my birth. My father hired rams of Mr. Stow. We had very good pigs. Of graſs-land my father was an excellent manager; by his great attention to ſurface-draining, he converted a farm remarkable for rotting ſheep, into a perfectly ſound and thriving paſture. As a proof of this, he did not in the laſt thirty years loſe a ſcore of ſheep, although in one year there was a general rot all over the iſland; but

in

in that year he did not loſe more than ſix, or *ſeven* at the moſt.

My father had a farm at Salfleetby, one at Truſthorpe, and another at Skegneſt: theſe three farms were all in what is termed the MARSHES, and conſiſted entirely of graſs-land.

It may, perhaps, convey ſome uſeful knowledge, to inform the reader of the purpoſes to which theſe farms were applied.

The *freſh*-water marſhes were proper for feeding cattle and ſheep, and were far from being bad for horſes. The *ſalt* marſhes were much better for horſes, and excellent for old ſheep. Upon horſes they act as phyſic, and at the ſame time make them fat; but they are improper and unwholeſome for ſteers, and for all *young* ſtock, except horſes. Lambs feeding on them will purge to death, whilſt a *young* horſe will thrive in a moſt aſtoniſhing manner.

My father employed every means in his power to inſtruct me thoroughly in the buſineſs he practiſed with ſo much ſucceſs, and neglected no opportunity of gratifying

the ardent deſire he had of making me a complete farmer; and the ſtrong propenſity he thought he diſcovered in me, at a very early age, for the profeſſion, encouraged him to perſevere in his endeavours.

He made me aſſiſt in performing every part of the farming-buſineſs from the time I was able until I quitted him; and the experience I gained thus early from my own obſervations, joined to the inſtructions of my father, enabled me, when very young, to be a tolerably good judge of the different ſorts of ſoil our ſeveral farms were compoſed of.

The MARSHES lay ſome miles diſtant from the home farm; and one part of my province being the driving ſtock to and from them, it frequently fell in my way to hear from others opinions of the ſtock I was attending, my father being noted for good ſtock. Thoſe opinions I carefully liſtened to, and certainly profited by; as I had afterwards the opportunity of aſcertaining the value of them, and whether they were given with judgment, by ſeeing how

how the ſtock turned out, and how they fed.

I alſo examined, with a minute degree of attention, the management of the different farms I paſſed; which, from the ſlow pace the ſtock travelled, I had ample opportunity of doing.

My father took me a farm (of Mr. Vyner of Gautby) at Claythorpe, diſtant about a mile from our houſe. Mr. Vyner being very averſe to ploughing, it was with much difficulty he was prevailed upon to ſuffer me to plough forty acres; but by this improvement I was enabled to keep nineteen ſcore of ſheep upon the farm, that never before had maintained a greater number than thirteen ſcore—a very material difference. I likewiſe kept many more beaſts and horſes than the old farmer my predeceſſor; beſides raiſing a quantity of corn.

Four years afterwards I went to Aſgaſby, near Horncaſtle, in the county of Lincoln. This farm was unfavourable for ſtock of any kind; what were kept there required con-

ſiderable aſſiſtance from art; as nature would of herſelf, in that ſituation, furniſh but a ſcanty allowance. It conſiſted of four hundred acres of land, with right of common over the very extenſive and valuable commons of the eaſt and weſt fens. And here I acquired, though at a heavy expence, a thorough knowledge of the advantages and diſadvantages of paſturing on commons. The plough-land of this farm conſiſted in general of clay, with flints on the ſurface, covering a ſtratum of white clay intermixed with a ſmall quantity of ſand and flint.

The methods purſued in agriculture, at that period of time, were turnips, barley, clover, and wheat; and that rotation of crops is in ſome places yet, though injudiciouſly, perſevered in.

I well knew the value of MANURE, and felt the want of it—conſequently uſed every means within the compaſs of my knowledge to procure it. I formed ſuch a reſervoir, or receptacle, for the moiſture of the fold-yard, as is deſcribed in the body of this work: but I totally neglected the advantage

vantage of the GREEN CROP, the fold, and ſtall-feeding in ſummer; which would have increaſed the quantity of manure full *one third*—an acquiſition of conſiderable conſequence, independent of the ſaving in the food of the animals ſo kept. By ſuch increaſe of manure, and the diſtribution of it as recommended in this work, my farm would have been much more profitable.

During eight years' reſidence on this laſt-mentioned farm, I became acquainted with the firſt and moſt reſpectable breeders of ſheep in the county: Mr. Chaplin, of Tathwell; Mr. Bourne, of Dalby; Mr. Codd, of Ranby; and ſeveral others.

With Mr. Chaplin I became particularly intimate; and he introduced me to Mr. Bakewell, by prevailing upon me to go to view the ſtock at Diſhley, and to hire a particular ram for him for the ſeaſon. Glad of the opportunity of converſing with a man of Mr. Bakewell's experience and acknowledged abilities, I with pleaſure accepted the commiſſion.

My ideas of ſtock at that time were, that none were valuable but what were large. I had that ſeaſon conſiderably enhanced the value of my own ſtock (though in the time of the American war, when ſtock of all ſorts fetched a low price), as I proved by the ſale of ſome drape-ewes. The average prices were from *ſix* to ſeven ſhillings per head, even of thoſe by the moſt famous breeders in the county. But one hundred of mine were purchaſed of me, by Mr. Fydell of Boſton, at fifteen ſhillings per head, with forty culls at thirteen ſhillings per head.

I had the vanity to conſider myſelf the firſt in rank as a breeder of ſheep. It was not therefore extraordinary for a man who entertained ſo extravagant an opinion of himſelf, to glance ſuperficially over the ſtock of another; who, from the envious diſpoſition too common in mankind, had many detractors amongſt malevolent and intereſted competitors. I am obliged to own (what now ſeems almoſt incredible to myſelf)

myſelf) I looked upon Mr. Bakewell's ſheep with indifference, if not contempt. The firſt objects pointed out to me as worthy of notice, were eight tups, three heifers and calves, on a piece of land near the houſe; but they appeared to me ſo ſmall, that I beſtowed no more attention upon them than juſt to perceive they were beaſts and ſheep. I was ſhewn more rams, and behaved with the ſame cool indifference. I next got amongſt the breeding ewes. With them were ſome extraordinarily large Flanders mares, of a beautiful jet black, with remarkably long manes and tails: theſe caught my eye—their appearance ſtruck me forcibly; but for the mares, I might have paſſed over the moſt valuable breed of ſheep in this kingdom without noticing them; ſo totally were my ideas taken up by the *large ram* I had come in queſt of. Stopping to look at the mares, ſome ewes attracted my notice. I requeſted the liberty of touching them; which was readily complied with. The ewes were immediately put in a fold, that I might examine

amine them at leiſure. According to my uſual cuſtom, I began with the beſt, and was much ſurpriſed at the perfection of the ſheep; but how ſhall I expreſs my aſtoniſhment at not being able, after *touching* the greateſt part, to find a *poor* one amongſt them! I awoke as from a ſound ſleep, and was aſhamed of my ſtupidity. I diſcovered, in an inſtant, the ſheep of Mr. Bakewell to be far ſuperior to my own, which I had, until that moment, thought ſome of the beſt in the kingdom.

My curioſity was ſtimulated. I requeſted to be ſhewn the whole farm, having repeatedly been told that Mr. Bakewell's ſheep were put into particular paſtures for *ſhew* only, but that there were other paſtures into which they were turned at night to feed; and being rather aſhamed of my careleſſneſs at the outſet, I determined to beſtow a minute examination upon every part of Mr. Bakewell's management that I ſhould have the opportunity of inſpecting during my ſtay.

The paſtures in which the breeding ewes

juſt mentioned were, being much beaten by the Flanders mares and the young beaſts, would no doubt juſtify the ſuſpicion that the ſtock were only put in them for the purpoſe of ſhew. Before that time I had no idea of ſuch thrift, or ſuch diſparity in the animals feeding. The *largeſt* of my own ſtock were the fatteſt; I thought this to be the caſe every where.

In going over the farm, I ſaw other animals valuable as the ſheep in proportion: there were ſome yellow cows, by far ſurpaſſing any I had before ſeen, beautiful in the extreme, and uncommonly fat. The cabbages were untouched, the carrots unpulled, turnips unſtocked, the eddiſh uneaten; a convincing circumſtance that no deception was uſed in their feeding.

Returning towards the houſe, I perceived whence the idle and malicious tales reſpecting Mr. Bakewell originated; and where lay the miſtake of thoſe who, without malice, had propagated the ſtories. On a ſmall piece of land were ten ſheep, ſix beaſts, and ſeveral horſes, all feeding on green

green fodder! This was a novelty to me.

I had not yet ſeen the principal object of my journey, the great ram: of courſe I was obliged to enquire particularly concerning him. Immediately my curioſity was gratified with a ſight of that extraordinary creature, who appeared to me to be of the *Tees-Water* kind, with but a ſmall ſtrain of the Diſhley in him.

In the ſame paſture with the ram were ſeveral of the largeſt ewes I had ever ſeen, and ſome wethers, all of the *Tees-Water* kind.

In my return I ſaw ſome ſmall rams, which I examined with care: one, a very ſmall one, I took a particular fancy to.

I dined with Mr. Bakewell, and during four hours converſation with him obtained more uſeful knowledge with reſpect to the breeding and management of ſtock, than I had been able to acquire during all the time I had practiſed the buſineſs of a farmer. It is with gratitude I acknowledge the obligations heaped upon me by that great, that intelligent, that uſeful man; and I hope the precepts

precepts he afterwards took ſo much pains to inſtill into me, will prove beneficial to the public.

I hired the large ram, and likewiſe one of Mr. Bakewell's own breeding. They were much eſteemed and admired by all good judges in our neighbourhood.

This journey totally removed many pernicious prejudices from my mind; and from a conviction of my error, I acquired the habit of not truſting too implicitly to appearances and to my own preconceived opinion; which was of great advantage to me in my reſearches after uſeful knowledge.

I left Aſgaſby, and went to Doncaſter; where I ſoon after took a farm, which may truly be called an *experimental* one. A great many of the experiments there made are deſcribed in this work. I was greatly encouraged to perſevere in my improvements, by the attention ſhewn me by Sir John Sinclair, Bart. Preſident of the Board of Agriculture. That very uſeful and intelligent man, Mr. Robert Brown of Murkle in

Scotland, had come to take a view of the agriculture of the weſt riding of Yorkſhire. To him I got introduced; and he, conceiving a favourable opinion of my knowledge of rural economy, recommended me to Sir John, who ſoon after did me the honour of calling upon me. Sir John was ſo good as to ſend me ſome reports of the ſtate of agriculture in the Lothians, &c. and ſome other inſtructive publications; the peruſal of which raiſed my ideas, and excited my curioſity ſo much, that I was not ſatisfied until I examined the modes of farming practiſed there and in other parts of England and Scotland.—The reſult of my obſervations, and of my own experiments, I have detailed in the following Treatiſe.

I now muſt make an apology to the reader for having dwelt ſo long upon myſelf and my own concerns, which I truſt his candour will not impute to egotiſm—I deſpiſe the character of an egotiſt: I only wiſhed to point out the ſources whence I derived

derived my knowledge of the ſcience I mean to treat of.—The height of my ambition is to be uſeful, and to convey my thoughts in ſuch a plain, familiar ſtyle, as ſhall be perfectly intelligible to the practical farmer.

THE

EXPERIENCED FARMER.

SECTION I.

Method of making Fallows by having a Crop at the ſame time, and ſometimes Two Crops, with a Crop of Wheat the ſucceeding Year.

ON A CLAY SOIL.

FIRST year. A pea fallow, drilled and manured.

Second year. Wheat.

Third year. Beans, drilled and manured.

Fourth year. Either wheat or barley.

Fifth year. Clover with a *top-dreſſing*.

Sixth year. Wheat.

This is what I term a rotation of crops; and by manuring once in two years, each crop may be expected to turn out a good one. To purchaſe manure (which in many ſituations cannot be obtained) will not be

neceſſary; as, from the ſucceſſion of crops laid down, the land's own produce will ſupply a ſufficiency. By mowing the ſtubble, throwing the roots and weeds into the reſervoir (as will be deſcribed hereafter), you will procure *four loads* of good manure per acre each time for the two drill crops, and ſix loads of *top-dreſſing* for the clover; making together fourteen loads per acre for the ſix years on an average. If there be a redundancy of manure, the overplus may be laid on the clover. The bean crop might perhaps take more manure than here allowed: but peaſe will not bear a larger quantity, as they would be liable to run to ſtraw and yield but little. Should beans riſe too high, it will be neceſſary to top them with a ſcythe in a ſtraight ſhaft; which is done at a trifling expence. But if garden beans be ſown, they will not be liable to ſhoot too ſpindling, as they require richer land.

When rape ſeed ſells well, a crop might be thrown into this ſort of land; but although rape be in general reckoned profitable, in this inſtance it could not turn to much greater account, ſuppoſing a good return;

turn ; for rape takes two years to produce a crop on fallow land, in the old huſbandry. It muſt be ſown in the month of Auguſt, and will not be fit for reaping until the following July or Auguſt twelve months; conſequently from the profit muſt be deducted two years rent, as the land lies idle ſo long to receive its crop and take its fallow. On freſh or ſward lands intended to be pared and burned in the months of June and July, it is certainly very proper and profitable to ſow rape.

SECTION II.

A regular Rotation of Crops on different Soils, demonſtrating what the different Soils are by Nature intended for.

ON A DEEP LOAM, OR WHARP.

FIRST year. The potatoe-fallow, manured, will turn out the moſt profitable.
Second year. Wheat.
Third year. Drill beans, manured; or peaſe.
Fourth year. Barley.
Fifth year. Clover, manured.
Sixth year. Wheat.

Rape might be ſown on this land to advantage after the crop of peaſe, if podded; and inſtead of barley, as before hinted. If rape be ſown and reaped for ſeed, the ſtraw muſt be carefully ſtacked up, to be uſed in the ſtall or fold as litter for cattle. The ſtalks and roots muſt be all removed carefully from the land, and carried into the fold-yard, that the cattle may tread upon them all winter. By theſe means a great deal of manure will be gained, as they will imbibe the urine of the cattle; and the wheat crop will be better for the refuſe being taken away.

On a Sandy Soil.

Firſt year. Turnip fallow, drilled and manured.

Second year. Barley; or wheat, if the turnips are early eaten off.

Third year. Peaſe, drilled and manured. The ſame year, Turnips in drills, if the peaſe be podded.

Fourth year. Barley.

Fifth year. Clover, manured.

Sixth year. Wheat.

The

The drill crops ſhould have four loads of manure each; and the clover, as ſoon as the barley is removed, ſix loads of manure or compoſt.

On a Lime-ſtone Soil.

Firſt year. Turnip fallow, drilled and manured.

Second year. Barley.

Third year. Peaſe, drilled and manured.

Fourth year. Wheat.

Fifth year. Clover, manured.

Sixth year. Wheat.

By way of croſs-cropping, if the fourth crop were oats, it would be full as proper, and uſeful; ſome oats being generally wanted on a farm.

On Moor Land, or Peat.

Firſt and Second year. Rape for ſeed, with a dreſſing of lime.

Third year. Wheat.

Fourth year. Drilled and manured peaſe or beans.

Fifth year. Wheat.

Sixth year. Oats.

On a Poor Sandy Soil.

Firſt year. Fallow turnips, drilled and manured.

Second year. Barley.

Third year. Seeds, to be eaten by ſheep for three ſucceſſive years: but, if once mown, to be eaten by ſheep the other two years, and then ſown with wheat or rye. This crop ought to be dibbled.

On a Poor Lime-ſtone.

Firſt year. Turnips drilled and manured.

Second year. Barley.

Third year. Seeds, mown, or eaten by ſheep, the next two years—then ſown with wheat or oats dibbled.

As the two laſt ſpecies of ſoil may be ſuppoſed not capable of bearing a conſtant rotation or ſucceſſion of crops, they may be uſeful for breeding or feeding ſheep: the ſoil will be enriched by keeping them upon it; and if, the laſt year of the ſeeds, the farmer beſtow a top-dreſſing of manure, from his reſervoir of compoſt prepared for that uſe, of from four to ſix loads per acre;

the

the benefit of ſuch dreſſing will appear in the wheat crop, and repay him well.

N. B. The manure will proceed from the barley crop and firſt year's ſeeds' mowing.

Looſe Gravelly Soil

muſt be treated in the ſame manner as poor ſand. There are ſome moor lands which are ſandy, and conſequently proper to be eaten by ſheep, in the ſame manner as the two former ſoils, if they do not rot them.

N. B. The mode and expence of preparing land for theſe crops will be explained in Section XLV.

SECTION III.

The proper Method of making Manure, and bringing it with Diſpatch to the greateſt Degree of Perfection; ſo that the whole Quantity made may be put on the Land the ſame Seaſon, and Crops immediately grow thereon.

ALL fold-manure ought to be moved from the fold every *month* or *ſix weeks*. By letting it lie longer, the cattle will tread it

ſo hard in ſome places as to prevent the regular putrefaction; and if there come dry weather in the ſpring months, it will rot only *partially*, and not *equally*: and it is a very deſirable quality in manure to rot. It is therefore neceſſary to carry the whole from the fold-yard, and to throw it up in hills, ſo that the rain and ſnow may penetrate freely; which will cauſe the manure to ferment, and the fermentation produced by the heat of the dunghill will deſtroy the ſeeds of noxious weeds as effectually as if they were boiled in water, and will render them as incapable of vegetation as if they had lain twelve months in a hill.

It has been cuſtomary with ſome farmers, intelligent men in other reſpects, to turn their manure over in the fold, in the ſpring, in dry weather; and as it is dry and trodden down hard, they are obliged to cut it with a hay-knife, and throw it up in lumps: but, in heating, the dry part will injure the moiſt, and prevent putrefaction. That, therefore, is not ſo good a method; for the more it is ſhaken about,

and

and the lighter the hill is made, the quicker it heats and rots: and no fold-manure can be in a proper ſtate to be laid on land till it has undergone a degree of fermentation. The manure thrown out at ſtable-doors, if the cattle do not tread it down, may change into a proper ſtate without being moved. The greater the variety in the ſorts of manure, the better; ſuch as the dung of pigs, horſes, cows, &c.

By this method you may, in one or two months, make excellent manure, far exceeding that made by the common proceſs, which requires ſo much time and labour to bring it to perfection. The *old* farmer prides himſelf on having manure accumulated for a year at leaſt preceding the uſe; but he is wrong to boaſt of ſuch management—it is falſe economy. The ſalts and oil, which conſtitute the richeſt part of the manure, evaporate; and the juices drain from it, if it lie long after being taken from the fold-yard or reſervoir.

When roots of graſs, couch, ſtubble-roots, rotten vegetables of moſt ſorts, weeds

from

from ſtanding pools and ditches, and almoſt all kinds of refuſe ſtuff, by being plunged in the reſervoir, are made into manure, it will take much longer time to rot it down; as, from its being made chiefly of weeds, and roots of weeds, they will be liable to grow again, eſpecially if there be any couch-roots among them.

Let the manure from the reſervoir be worked down very fine, and, when compoſed of roots of weeds, laid as a *top-dreſſing* on clover or ſeeds two years eaten; for, were it put in drills, and covered with mould, there is danger of its again filling the land with weeds. It is well known the ſmalleſt piece of couch-graſs will, from its great ſucculency, be liable to vegetate. I tried an experiment, by raking the couch clean from the fallow in very hot dry weather, and had it carried into the fold-yard, where at the time upwards of one hundred pigs were, and continued feeding during the whole of the ſummer, which was remarkably dry. The couch was of courſe much turned over by the rooting of the

pigs. During the courſe of the winter it was covered with horſe-dung, cow-dung, and a variety of matters by the different ſtock turned in, and by manure carried from the ſtables and cow-houſes; and it remained in the fold-yard eleven months, and was afterwards uſed on land ſet with potatoes. A ſmall quantity of the couch, notwithſtanding, ſprouted amongſt the potatoes.

Another very good mode of making manure (on which ſome experiments have been tried under my direction) is, by driving ſheep out of the fold where they have been folded, to eat turnips in the day, and putting them at night into a ſtraw-fold made purpoſely for ſheep. This not only anſwers the purpoſe of making manure, but alſo cauſes the ſheep to feed quicker and conſume leſs turnip; for, when ſheep leave turnips, they will eat *ſtraw* by way of variety—as a well-fed citizen will devour a decent quantity of pudding after a few pounds of beef. Sheep lying in the fold littered with ſtraw, find themſelves much more

more comfortable than on a cold dirty layer, where turnips have been eaten off by them; and were theſe ſheep continued in the field, as many of them as could would creep into the hedge-bottoms for ſhelter, and there drop much of their manure, which would be totally loſt to the uſe of the land.

For greater convenieney, you may make a fold in ſome place near the turnip-field; carry the ſtraw into the fold, and put the ſheep into it.

It is proper to rouſe the ſheep and ſtir them about in the fold before they are driven abroad in the morning. By this means they empty themſelves; and thus diſorders incident to ſheep at turnip may be frequently prevented, and a quantity of dung is ſaved which otherwiſe would be loſt on the road to the turnip-field. I know a farmer who, by following the above rules, has this ſeaſon made a conſiderable quantity of manure of an excellent quality.

By attending to the above directions, manure in high perfection may be made in ſix weeks or two months; and, inſtead of ly-

ing, according to the old cuſtom, on the high roads, in hedge bottoms, fold-yards, &c. may, by drill-huſbandry, be depoſited in the land, and good crops of peaſe, potatoes, beans, cabbages, turnips, &c. be growing thereon.

SECTION IV.

By Drill-Huſbandry, four Loads of Manure, properly managed and applied, will anſwer the Purpoſe of ſixteen Loads in the old Way of Huſbandry.

BY drills being made two feet aſunder, and the drill ſix inches wide at the bottom, there will be juſt one fourth part of the ground covered with manure. Now, as ſix inches multiplied by four gives two feet, which will be the diſtance from drill to drill, and as four multiplied by four makes ſixteen, it follows, that if the whole of the land had been covered with manure, ſixteen loads would have been required for what is as fully and beneficially performed by four; that is, by one quarter of the quantity uſed by the old method of dreſſing, ſuppoſing it

of

of the ſame thickneſs and quality: and, as in the drills it is ſo cloſely laid in the earth, and the ſeed ſown upon it, the crop receives the whole of the benefit.

It will be generally agreed, that beans, peaſe, cabbages, &c. are by this method allowed a proper ſpace to bring them to the greateſt perfection, and a ſufficient quantity of manure to promote a ſtrong vegetation: but by ſpreading only four loads of manure in the old way, and ſowing the ſeed broadcaſt, the farmer will find himſelf greatly deficient in yield of CORN, weight of turnips, cabbages, &c. compared with the crop produced by the new ſyſtem.

Another great advantage attending my method is, that the crop will have double earth to grow in, and that the land may be cleaned at the ſame time it is growing, and bear a much better crop of wheat afterwards. Many other benefits will ariſe from the uſe of this drill huſbandry. By putting the manure in as here directed, the ſun is prevented from exhaling moſt of its fine ſubtile parts, ſo conducive to the nouriſh-

ment

ment of the plant: the earth, by covering the manure, receives all the juices the manure is capable of beſtowing: whereas, by throwing or ſpreading it about upon the land, perhaps the ſeed falls in one place, and in another the manure, which the ſun and wind dries to ſuch a degree that it becomes like ſtraw again, as the ſcantineſs of the crop too often makes evident.

SECTION V.

Method of making Drills, and putting Manure in them.

THE beſt method of making the drill is with the Rotherham or ſwing-plough, by drawing a furrow down the land, then coming back without any furrow to the place you began at, and beginning there and drawing, by the ſide of the firſt furrow, another furrow twenty-four inches diſtant, in the manner land is wreſt-baulked, and then coming up the firſt furrow again. The firſt drill is then finiſhed. By this method the plough makes an open ridge, ſo as properly to contain the manure. When this is done through-

throughout the field, or as much of it as you chooſe; then, to put the manure in the drills, let the horſes go up one drill, and the cart-wheels up the two others. Going along the drills in this manner will injure them but very little. The man in the cart may, if required, throw from the ſame ſtation manure into nine drills. The load of manure ſhould be ſuch as to go through the field in a ſtraight line; as turning round with the cart would ſpoil the drills: therefore no more drills muſt be manured than the load will go through with. My cuſtom is to have one man on the cart, and a woman, or boys and girls, to ſpread the manure regularly along the drills. This is a good method of proceeding. It is very eaſy to count the number of drills contained in an acre of land; and thus, if your carts are regularly filled, every acre of ground will be manured in an equal manner, which is not eaſily done by the old method.

SECTION

SECTION VI.

Beſt Method of treating each Crop; with the Seaſon for Sowing and Reaping.

THE wheat crop may be ſown from September to January with nearly equal ſucceſs. Late ſowing in ſome parts has anſwered ſo well, that many farmers have ſown ſo late as February; but, in general, November will be found to be the beſt month; except where lands are liable to be flooded in the winter. That ſort of land ſhould be ſown as early as poſſible; becauſe, if the plants get weaned from the kernel, and take hold of the earth for ſupport, water may continue upon them a long time, without much injuring them. But, if the land were flooded before the wheat comes up, it would be totally deſtroyed.

Land liable to be flooded ſhould be ſown with a drill, for the following reaſons: If a wet winter be ſucceeded by a dry ſpring, the ſoil will become ſo hard as very much to impede the progreſs of the plant; and

when rain falls, it penetrates the earth but partially. Were the ſcarifier and horſe-hoe uſed, it would lighten the ſoil, and the rain would penetrate more generally.

The ſort of land we are now ſpeaking of is very apt to abound with what is called ſpry-graſs—a ſpecies of graſs which comes up ſo thick as to make abſolute ſwards of the ſpots it grows in, which are generally the moiſteſt parts of the field. This kind of graſs robs the wheat-plants of their food or nutriment; and where it abounds, you muſt expect but a ſcanty crop of corn. As a remedy for this evil, ſow the ſeed-wheat in drills, and in the interval betwixt drill and drill ſcarify or horſe-hoe the land; which will deſtroy the graſs and weeds growing in the intervals, and pulverize the ſoil ſo as to receive freely and equally the rain and dews. The wheat may be moulded by the hoe; which will make the plants vigorous, enable them quickly to cover and protect the ground from the effects of drought, and enſure the ſucceſs of the crop. It would likewiſe be a great ſaving towards

clean-

cleaning the land for the next year in the bean-fallow; for ſuch land may be conſtantly managed, as above directed, with beans, and wheat.

This kind of land is likewiſe liable to crack, and to gape ſo wide as to receive, to a conſiderable depth, the foot of a horſe, and conſequently make it dangerous for man or beaſt to walk over it. The pulverizing it in the manner before mentioned, would in a great meaſure prevent the cracking.

Where the old ſyſtem is followed, beans very often fail of producing on this ſoil a good crop, owing to too much or too little moiſture while growing. Oats proſper on ſome of this ſort of land; and a crop of oats may be taken after wheat, when the land is in good condition; but I do not approve of ſuch cropping. Before the bean-fallow, the beans muſt be drilled and manured; and if you beſtow *ſix loads* per acre in the drills, as before deſcribed, the land will be far leſs liable to crack: for, by moulding the beans, they will ſoon acquire ſtrength and ſize ſufficient to ſhelter the land, and by keeping it

ſhaded prevent its cracking. In my cõ-neon, peas are more proper than beans for land ſo circumſtanced; as, by lying down, they cover the ground more cloſely and preſerve a greater degree of moiſture: but if you have a bean crop, and the beans run up too high, it will be adviſable to top them with a ſcythe in a ſtraight ſhaft. A man would top them for ſix-pence per acre; and the operation would make them bear better.

I muſt repeat my predilection for peas on land liable to be flooded, as they are much ſooner ripe; and the ſhorter the time the crop is on the land, the leſs the danger of loſs by ſuch floods: therefore the earlier the peas the better. I ſee no reaſon againſt ſowing garden-peas generally. I have always found them to produce the greateſt crop; and if uſed, they would be equally cheap to the grower for ſeed, and ſurely more profitable, as they would boil, grind into flour, and turn to great advantage by being gathered green at the beginning of ſummer. Beſides, as they are early off the land, it might be ſcarified to make as perfect a fal-

a fallow as the farmer could deſire. By ſuch a ſucceſſion of crops, the ſtraw, ſtubble, &c. would produce ſufficient manure to furniſh at leaſt ſix loads per acre, every two years.

I cannot adviſe the ſowing of clover, or of any of the graſs-ſeeds, on this land, except wanted for paſture or meadow. If the ſoil here ſpoken of, viz. clay, have had a large quantity of lime on it, there is no doubt but the lime may have injured it, and you may expect the ground to crack much, as moſt ſorts of lime impoveriſh land.

A *ſandy* ſoil, or a *lime-ſtone*, is not difficult to till, being of a kinder nature than ſtiff clay. I found that the beſt time for ſowing wheat on theſe ſoils was the month of November; and the wetter the land, the more likely you are to ſucceed. But if the land be clean, I do not recommend ſcarifying the wheat in the ſpring; but prefer treading with ſheep early in that ſeaſon. Buſh-harrowing and rolling anſwer well on theſe kinds of ſoil.

Peas may be ſown, if the weather prove favourable, ſoon after Chriſtmas. A month

or ſix weeks difference in the time of ſowing is not very material; but if ſown early, the crop will be ſooner ripe and equally productive. You may ſtir the mould about them till May: and by doing ſo you will keep the ground as clear of weeds as if the peas had been ſown late. Even in the month of May they may be ſown with advantage, if your land cannot be put in a proper condition before.

Beans may be ſown in February, and until April. Barley is beſt ſown in March: late ſowing of barley makes the grain ſmall and coarſe, and much inferior to that ſown early: however, it may be ſown from March to May. Oats may be ſown from the beginning of March to May. Cloverſeed is beſt ſown with barley or oats, and harrowed in, as are all other ſeeds intended for ſward, &c. Buſh-harrowing is a good way where ſeeds are ſown.

Having ſpoken particularly as to the times of ſowing, it may be neceſſary to ſay ſomething generally as to the times both of *ſowing* and of *reaping*; for, as ſituations and

ſeaſons,

ſeaſons, which are the guides to both, vary ſo much, no preciſe rules can be abſolutely laid down for either the one or the other. But one general obſervation may be made: Corn ſown early is moſt likely to ſucceed, by having more time for tillering or branching, and from being ſooner ready for reaping. Early ſowing has ſo many advantages over the late, that, in my own practice, I have experienced a difference of one third in the amount of the produce, by the difference of a few days in ſowing, upon land ſimilar in every reſpect. Without doubt, it is beſt to be as early as the ſeaſon and the nature of the intended crop will admit of.

SECTION VII.

The Method of ſcarifying and making Land fit for Wheat after the other Crops are off.

BY putting the manure, as before directed, into drills two feet aſunder, it becomes neceſſary to croſs the drills to mix the manure well in the ſoil, and to pulverize

it. The readieſt way to do this is, by Cook's ſcarifier: but thoſe who are not in poſſeſſion of that uſeful machine, may ſubſtitute one of a ſimple conſtruction, which will be deſcribed hereafter. Ploughing in this caſe is very improper. For if there be a ſmall quantity of couch-graſs, or of any other weed, the plough turns it downwards, cauſes it to ſpread abundantly, and hides it; ſo that, when you come to plough for ſowing wheat, the weeds are ſet at liberty again to ſprout out at a ſeaſon when no weeds die. Cook's ſcarifier draws out the roots of the couch-graſs at full length. The plough would cut them up, and turn them over, and conſequently increaſe the number of roots; the ſmalleſt bit of which will grow. By the ſcarifier all other weeds, ſuch as thiſtles, &c. are cut up, and, when harrowed, are eaſily collected together and carried off.

Strong clay-land, when in drills, may be ſcarified, when a plough in a dry ſeaſon would have no good effect, not even touch it in the old way of cultivating land. Croſs-ploughing of fallows, though ſo frequently

prac-

practiſed, is a moſt pernicious cuſtom; for, if it were poſſible to deſire a crop of couch-graſs, ploughing in that manner, and harrowing after without raking up the refuſe, would moſt effectually anſwer the purpoſe.

SECTION VIII.

A Calculation of Six Years Expences of the Drill-Huſbandry according to the New Syſtem, and of the Old, ſhewing the Diſburſements for each.

OLD SYSTEM.

First Year, Fallow.

	£.	s.	d.
Four ploughings and harrowing at 6s each,	1	4	0
Twelve loads of manure at 8s. per load - -	4	16	0

Second Year, Barley.

Ploughing, harrowing, and ſowing - - - -	0	6	6
Weeding the crop - -	0	0	6
	£6	7	0

NEW SYSTEM.

First Year, Turnips.

	£.	s.	d.
Ploughing an inch and half deep - - - - -	0	4	0
Harrowing and raking, rolling, &c. - - - -	0	3	6
Ploughing twice, harrowing, raking, &c.	0	13	6
Leading off refuſe - -	0	1	6
Seed, and ſowing -	0	1	6
Making of drills - -	0	2	6
Three times ploughing the turnips, and hoeing - - - - - - - -	0	8	6
Six loads of manure at 8s. per load - - -	2	8	0

Second Year, Barley.

Ploughing and ſowing, harrowing, &c. - -	0	6	6
Weeding - - - - - -	0	0	3
	£4	8	9

OLD SYSTEM.	£.	s.	d.
Brought over	6	7	0
Third Year, Beans.			
Ploughing, harrowing, and sowing	0	6	6
Weeding	0	0	6
Fourth Year, Fallow.			
Ploughing three times and haarowing, 6s. each time	0	18	0
Fifth Year, Wheat.			
Ploughing and sowing	0	6	0
Weeding	0	0	6
Sixth Year, Oats.			
Ploughing and sowing	0	6	6
Weeding	0	0	6
	£8	5	6

NEW SYSTEM.	£.	s.	d.
Brought over	4	8	9
Third Year, Beans or Peas.			
Two ploughings, harrowing, raking, &c.	0	13	0
Drill making	0	2	6
Four loads manure at 8s per load	1	12	0
Three times ploughing, to mould the peas and destroy the weeds	0	4	9
Leading off refuse	0	1	0
Fourth Year, Wheat.			
Scarifying	0	2	6
Plowing, sowing, &c.	0	6	0
Weeding	0	0	3
Fifth Year, Clover.			
Sixth Year, Wheat.			
Ploughing and sowing	0	6	6
Weeding	0	0	3
	£7	17	6
Balance in favour of the new system	0	8	0
	£8	5	6

This calculation is made upon one acre of land from the old mode of fallowing once in every three years, or two crops and a fallow, which the *old* farmers call *not running* the

the land. With thoſe I vary very much, as will be ſhewn more fully in Section XLV.

The expences of the new mode are leſs by eight ſhillings than thoſe of the old in the firſt ſix years; and will ſomewhat decreaſe in the next ſix years, except in manure, which will be more, as in my mode the reſervoir and five crops of ſtraw will produce nearly double the quantity. My manure is all raiſed from the produce of the land it is laid on: but, to make his twelve loads, the *old* farmer robs the meadow or any piece of freſh land he is allowed to plough up. This is the principal cauſe why ſo many tenants are reſtricted from ploughing old ſwards; as they do not carry back the manure to its proper place.

In all my calculations, I ſuppoſe that two loads of manure can be made from every acre of ſtraw, if the crop be a good one. Therefore by the old ſyſtem (admitting the crop to be a good one, which frequently is not the caſe) there would be only eight loads of manure raiſed in ſix years, and by the new, ten loads, even without the aſſiſt-

ance

ance of the reſervoir. But in the ſecond ſix years, if my plan be followed, I expect to have fourteen loads.

In making the above ſtatement I have followed the uſual mode of calculations upon agriculture, by charging the manure as an expence; which, however, is very wrong, when it is not purchaſed, but produced from the land.

SECTION IX.

Wheat-Crop through all the Stages, Drill-Huſbandry or Broad-Caſt, Reaping, Threſhing, cutting Straw for Chaff, &c.

TO ſow wheat by the drill, ſix pecks of ſeed are thought ſufficient for one acre: but I ſay, ten pecks; for broad-caſt, twelve. Two men with one horſe will drill with Cook's machine eight acres in one day. By broad-caſt, one man will ſow twelve.

To prevent the ſmut in wheat, diſſolve ſalt in water till an egg ſwims in it: put your ſeed-wheat into the brine, and ſeparate the light grains that ſwim at top from thoſe which

which ſink. Some let it remain twenty-four-hours in the brine: this I diſapprove of, as it can produce no good, and bad conſequences may enſue. When you have taken the wheat out of the ſalt and water, ſprinkle it over with chamberley, or with water in which arſenic has been boiled (one pound to eight gallons of water); then throw on dry lime to make it ſpread, and to prevent the birds, which do not like the lime, from eating it. Oats and barley may be prepared in the ſame manner as wheat. The arſenic-water or chamberley penetrates into the infected or damaged grain, deſtroys the vegetative power, and cauſes it to rot in the ground; by which means more room is left for the ſound to grow. The operation with the chamberley or arſenic-water is dangerous; and often almoſt the whole crop is ſpoiled by it. This will appear from the following accident that happened to me: the chamberley, being taken from the bottom of the tub where it was kept, and conſequently ſtronger, killed the ſeed-wheat. I had ſteeped the wheat in ſalt and water

over

over night, as is our uſual way; and then ſprinkled it with chamberley and lime. The time of ſowing was from eight o'clock in the morning to four o'clock in the afternoon. The wheat that was ſown at eight in the morning ſprung up the ſame as that ſown on the preceding day; but kept declining, and became thinner and thinner, until at laſt ſcarcely a tenth part grew. A ſmall part of the field, which had been left unſown, was finiſhed the next day; though in the night there fell much rain, and I had then an averſion to ſowing any thing in wet weather. Being called from home for ſome time, my firſt purſuit, on returning, was to look how the wheat came up. To my great aſtoniſhment, that ſown in the latter part of the firſt day looked very ill; I therefore enquired into the cauſe; and, having great numbers of pigeons, I ſuſpected they muſt have eaten it. I conſequently returned to the field, and on ſearching into the mould found thouſands of the grain rotting. The wheat being all of one quality, and all prepared alike, I was more

than ever puzzled. Knowing, however, there muſt be a cauſe, I reconſidered the whole; and at laſt I remembered the rainy night. The tub which had the chamberley in it was uncovered, the rain had fallen into it, and had lowered the ſtrength of the chamberley; and conſequently the wheat that was ſown the laſt day was by far the beſt in the field. This circumſtance had prevented me from aſcribing the bad ſtate of the wheat to the chamberley. But the chamberley had certainly injured it, ſo that the part ſown before the men went to dinner, and that part ſown after dinner, might be diſtinguiſhed to an inch. Had the wheat remained unſown two hours longer, the chamberley would probably have killed it all. The part ſown after the rain was the beſt crop at reaping. I have ſince tried twenty experiments by ſowing in rain, or when land is wet; and I always found it anſwer in the autumn. In ſpring the practice is improper, as there is danger of the land's ſetting.

Shearing or reaping with the ſickle is moſt

moſt generally practiſed in reſpect to wheat when fit to cut; but in ſome parts they *mow* it—a method I much diſapprove of. Although reaping coſts double the price of mowing, the difference is much more than made up by the great ſaving of grain, and by the goodneſs of the ſtraw for the purpoſe of cutting into chaff; for by ſhearing you have only the fine part of the ſtraw, and it requires leſs carrying, and leſs room in the barn or ſtack; and the ſtubble ſerves for litter. If ſhorn, the beſt method of ſecuring wheat in the field for harveſt, is to ſet up ten ſheaves againſt each other, and hood or cap them. Hooding or capping will prevent the pigeons doing damage, and, by being a good guard againſt rain, give an opportunity to the corn of ſtanding a ſufficient time in the ſtook to be ready for the barn.

Threſhing is moſt profitably performed by the machine, as will be explained in the following ſection.

It is needleſs to ſay any thing here of chopping

chopping of ſtraw; as the operation is ſo ſimple and generally known, and frequently ſpoken of in the courſe of the Work.

SECTION X.

Uſe of the Threſhing-Machine.

BY threſhing with the machine, little corn will be left in the ſtraw. I do not mean to deſcribe the machine minutely: the inventor is ready to give particulars to thoſe who chooſe to apply to him. It is ſufficient for me to ſay, that by the operation of this machine the corn is to a certainty freed from the ſtraw and all extraneous matter. Threſhing with the flail is uncertain at the beſt, even ſuppoſing the threſher diſpoſed to do his work well; for he may beat a long time and not meet with every head of corn, which with the machine it is ſcarcely poſſible to miſs. The grain waſted by the uſe of the flail is beyond belief. One circumſtance ſtruck me forcibly as to the waſte of wheat by bad threſhing. I had the curioſity, when in

London (it was at the time her Royal Highneſs the Princeſs of Wales lay-in), to look at the Prince's horſes: ſome ſtraw was then drawing into the ſtables, which I obſerved to be very ſlovenly threſhed. The court, or ſtable-yard, was at the time covered with ſtraw, on account of the Princeſs's ſituation: this of courſe was much beat by carriages; and when the litter was taken up, the ground was ſtrewn with corn. I am of opinion, the corn loſt by threſhing with the flail is more than would pay for threſhing it all over the kingdom by the machine.

The only plauſible objection to the threſhing-machine I ever heard, is the expence attending the making and uſing it. But, the firſt expence will be counterbalanced by the ſaving in the erection of barns; as one of a moderate ſize will be ſufficient, where it is now neceſſary to build two or three of great extent. And thoſe who object to the expence of working it know nothing of the matter. Experiments have been made upon what has been left by the flail, as well threſhed as men could do it: and on having it done over again by the

machine

machine worked by one horſe, it has been found to pay well for the trouble.

Every machine muſt be worked by ſome power; and whether the power is applied by means of living animals, by fire, wind, or water, the effect will be the ſame. The uſe of water is attended with the leaſt expence; but it is confined to particular ſituations. Wind is uncertain even to a proverb. Fire, in countries where coal is cheap, may be applied to great advantage; ſteam-engines being now improved to a degree of perfection that heretofore they were thought impoſſible of attaining. They are dangerous, however, where ſtraw is concerned. But the power moſt generally uſed to put the threſhing-machine in motion, is that of living animals. A farmer intending to erect one of theſe machines will no doubt proportion it to the ſize of his farm, and to the quantity of corn he means to threſh; though, indeed, the power may be applied to many other uſes. The dimenſions of this machine may be ſuch as to work with one horſe only; or it may be large enough

to work with half a dozen, where the farm is very extenſive, and expedition is neceſſary.

The machine will require five pair of hands to work it. But let not the farmer be alarmed at the number of hands mentioned; for one woman and four children will eaſily work one upon a middling ſcale.

The method is as follows: One takes the ſheaf from the mow; another unties, ſpreads, and lays it on a place proper for the third perſon, whoſe buſineſs it is to feed the machine. This third perſon muſt be a ſteady one. A fourth takes away the ſtraw. Fifthly, a boy to drive the horſe: but when the horſe becomes uſed to his work, a driver will be unneceſſary. Be the ſize of the farm more or leſs, there are almoſt always horſes to be ſpared for work of this kind, which may be ſo contrived as to be done at a leiſure time. But ſuppoſing the farm ſo large as to employ a machine worked with *five* horſes; it is highly probable that on ſuch a farm there may be brood-mares, kept ſolely for the purpoſe of breeding: it would

would be good economy to uſe ſuch mares when the foals are taken from them, which is uſually done in the threſhing-ſeaſon. Such a practice would encourage the breeding of horſes; and the mares ſo uſed would raiſe their foals well, and loſe no time.

But the farmer is not confined to the uſe of horſes; the employing oxen, or young growing ſteers, would be profitable; as in that caſe they would earn their meat. It is no doubt pleaſant to the farmer to derive a reaſonable profit from all the animals he keeps; which might be the caſe here.

It is a miſtaken notion to ſuppoſe that the uſe of this machine will decreaſe the demand for labour. On the contrary, it will afford employment for children, who, unleſs they are placed in the neighbourhood of manufacturing towns, conſume their youth in idleneſs, and contract a habit of pilfering; beginning perhaps with hedge-breaking, and progreſſively proceeding to crimes of a capital nature. An honeſt man, fond of work, and inured to induſtry, will always meet with encouragement.

SECTION XI.

Different Sorts of Grain proper for different Soils.

WHEAT will grow upon almoſt any ſoil, with proper care and management; but it proſpers beſt upon a clay, loam, or wharp.

Barley delights in ſandy or gravelly ſoils, or lime-ſtone; yet, if a clay ſoil be well managed, it will produce the beſt barley for the purpoſe of making malt; for, when properly manufactured, malt made from barley that has grown on clay-land is found to be more abundant in that ſaccharine juice in which conſiſts its value for the brewer. Barley will not thrive on moor-land, or peat-earth; nor does it like a low and wet ſituation.

Oats will grow upon any ſoil, but bear the heavieſt and fineſt crops upon gravel or ſand. Fen-lands will produce abundant crops of oats, as will in general all low land, if of a good quality. Lime-ſtone land very ſeldom produces large crops of oats;

oats; neither is a ſtiff clay favourable to the propagation of this grain.

Beans ſucceed beſt on a clay ſoil, loam, or wharp. With manure and proper management they will grow on any ſoil; but on few ſo well as on clay.

Peas will grow and proſper on almoſt any ſoil. They will produce abundantly, and with leſs manure than any grain I ever made trial of.

Tares will thrive well on all ſoils; they grow ſpontaneouſly on poor ſoils of a dry nature.

Garden-peas I have lately found to bear the winter much better than the field-pea, with the ſame treatment. But they all require a little manure. Four loads per acre will produce upon a middling ſoil a good crop.

SECTION XII.

Turnip-Culture in all the different Stages; with the great Advantage of the Drill.

TO raiſe turnip-ſeed in the beſt manner, you muſt pull up, from the field where they

ſtood all winter, ſome turnips of the moſt approved ſorts (I prefer the white-top, or the ſtone-turnip), and plant them in a ſmall ſpot of ground—a dozen will produce plenty of ſeed. Preſerve that ſeed, and ſow it in ſome convenient place, to raiſe ſeed for your whole crop the next year. Put them in drills, and do not hoe them; but draw them out by hand, leaving ſuch plants as take the lead. When they have appled or turned, carefully pull out every improper turnip. By following the above method, your ſeed will be more vigorous, will vegetate with leſs moiſture, and produce ſtronger and hardier plants. It is uſual at preſent to tranſplant a large quantity of turnips to raiſe ſeed for the whole crop, which practice is more expenſive and very injurious; for, by pulling the turnip and planting it again, you deſtroy the tap-root, and weaken the turnip's ſtrength and vigour, ſo that the ſeed from it muſt be of an inferior quality.

By drilling the turnips it is highly probable every plant will grow to perfection, if the manure be properly depoſited; and, by making the drills, a hollow place is left,

which

which will both attract and retain moiſture; and likewiſe ſhade the plants from the heat of the ſun, and thus deprive the fly, which is ſo dangerous an enemy to the turnip, in ſome meaſure of her favourite ſituation. Drilling likewiſe empowers the farmer to ſow the ſeed much thicker; and it is much leſs liable to be all devoured by the fly when ſo ſown, than when ſuperficially ſcattered by the broad-caſt. By the latter method the ſeed is ſprinkled unequally; and by adventitious circumſtances (ſuch as a puff of wind, or part of the ſeed falling on a hard clod higher than the reſt of the land, and rebounding to a diſtance from the ſpot it was intended to be depoſited upon) it is poſſible a large ſpace may be left nearly void, or perhaps with only a plant or two. Now it too often happens that the miſchievous fly attacks the very plants ſo thinly ſown, and by deſtroying them leaves a large ſpace of ground uncovered. It is certainly a moſt difficult taſk regularly to cover the land by the broad-caſt: on the contrary, by the drill-method the ſeed will all fall into the

the hollow part, and the mould (eſpecially if harrowed with the buſh-harrow) will be ſo finely pulveriſed, as to afford immediate nouriſhment to it; by which means the plants will get quickly forward. And when they are ready for hoeing, it will not require ſo expert a hand to divide them; and it will be eaſier to chooſe the maſter plant, which is of great importance in a crop of any kind. When they are planted in rows, any boy, girl, or woman may do the buſineſs effectually; and as this operation is performed at a ſeaſon of the year when men have generally full employment in other branches of huſbandry, it is convenient to the farmer that women or children may anſwer his purpoſe, and that at a cheaper rate than taking men from more important concerns.

After the turnip has acquired ſufficient ſtrength to bear ploughing the earth from the plants, it muſt be done without delay. The firſt ploughing will add ſufficient earth to the plant according to the then ſize. The turnips may be made to grow to what ſize the

the farmer chooſes (according to the nature of his ſoil) by only leaving them from ſix to twelve inches aſunder in the rows: and he may at any time add earth ſufficient to prevent their rotting by froſt in winter.

This often occaſions great loſs: but the farmer may eaſily guard againſt it, by covering them properly with mould; for he may plough as often as he chooſes, and at his leiſure, after the turnips are up; and in the rows he may pluck up the weeds any time before they get into ſeed. Turnips ſown as above directed ſtand moiſt in ſummer and dry in winter.

The ſecuring a crop by laying from *four* to *ſix* loads per acre of manure, as heretofore deſcribed, inſtead of *twelve*, is too great an advantage to be neglected.

In eating turnips off with ſheep, great loſs is frequently ſuſtained from want of proper management; but more particularly in the broad-caſt, where the cuſtom is to give ſheep a large fold of turnips. Perhaps froſt comes on immediately, and continues ſome days; a fall of ſnow probably ſucceeds;

in ſuch caſe, even the moſt obſtinate advocate for the old method certainly muſt allow the drill to be far preferable; as it would be eaſy to have ſheep-penns or turnip-trays made and ſet in ſuch a manner as to form a kind of trough, moveable of courſe. The bar or tray muſt be ſet near the far ſide of the row of turnips; and a board, from ten to twelve inches broad, with two or three ſtakes (longer or ſhorter according to the depth of the ſoil) nailed to it, muſt be fixed on the ſide where the ſheep are to eat; for the narrower the ſpace the turnips are encloſed in, the better. It may poſſibly be feared leſt the ſheep ſhould get in amongſt the turnips fenced off. I ſay, no. For, ſuppoſing the turnips to take up a regular ſpace of twelve inches, the trough may be made not much more than a foot wide at bottom, ſloping upward: and the tray or bar may incline towards the ſheep and hang over the trough, or part where the turnips are, and prevent them from getting into it.

By this means ſheep might have their food quite clean; and by ſetting off only the

the quantity neceſſary for the day, they would eat their portion with avidity, and not dung upon it, and ſpoil more than they eat. Every animal has a natural antipathy to its own excrement: can we then ſuppoſe ſuch clean feeders as ſheep an exception to the general rule? Even their lying down upon their food gives theſe delicate creatures diſguſt; and they have ſo great an averſion for what they have lain upon, that, unleſs impelled by hunger, they will not meddle with it. Will any farmer indiſcriminately uſe certain utenſils of his bed-chamber for the purpoſes to which thoſe of his kitchen are generally applied?

The opulent farmer, who may chance to read this, will probably exclaim: "This method may ſuit a man who has a ſmall flock; but what am I to do with thouſands and tens of thouſands of ſheep?" I anſwer: Examine the difference in expence, you will find my method cheaper than driving your thouſands or tens of thouſands from ten to fifty miles from home. For, beſides the loſs of manure, and the waſte of turnip,

turnip, you will not be able to ſee them, perhaps, above once in a month; and though your ſhepherd be a careful fellow, the flock will be diminiſhed by diſaſters which they would not have been liable to under the eye of the maſter. By keeping the ſheep at home, in the manner before deſcribed, they will tread the ground regularly, and conſiderably enrich the farm by depoſiting their manure where it ought to be; and, on the *loweſt* calculation, three ſheep may be kept in this way to two by the old method —perhaps even double the number: and by obſerving the regularity recommended above, they will fatten much ſooner than by the old ſyſtem.

It is well underſtood in feeding cattle, horſes, pigs, &c. that if you lay a redundancy of food before them, they will not, in many inſtances, feed ſo well: they eat juſt ſufficient to ſatisfy nature, and waſte the reſt.

If the ſheep were driven into ſtraw-folds, they might breakfaſt on ſtraw, which would cauſe them to retain the turnips longer in their

their ſtomachs, and thus to fatten ſooner. Meanwhile the ſhepherd and boy might be moving the fold a row farther; or, if found more convenient, they might move the ſheep early in the evening to the ſtraw-fold, and at that time ſhift the penn. Where there are both feeding ſheep and ſtock ſheep, it would be adviſable to give the feeding ſheep rather more than ſufficient for the day, and the next day to turn the ſtock ſheep into the fold to eat up what the others had left. By this method, a man may ſoon judge what length of turnips to give to the ſheep, ſo as to commit little or no waſte.

The advantage of my method will appear from the following calculation: Suppoſe two hundred ſheep to employ one man and one boy every day. I agree, the boy might be ſuperfluous in the old way; but allow one ſhilling per day for him. The ſame quantity of turnips I eſtimate to keep three ſheep where only two were kept before. Three hundred ſheep will then be kept where only two hundred were kept. Reckoning the profit on one hundred ſheep at

two-pence

twopence weekly per head, it will amount to 16*s.* 8*d.* per week; and deducting from it the extra charge of ſeven ſhillings for the boy, there remains a clear profit of 9*s.* 8*d.* per week. If the flock is larger, the profit will increaſe in proportion; as a man and boy can manage four hundred ſheep. Two hundred are ſufficient to be fed together: but if four hundred were equally divided, a man and boy could manage both flocks.

But I am of opinion, that even *two* ſheep may be kept by my method for *one* in the old way. If ſo, the money would be 1*l.* 13*s.* 4*d.* per week, which in twenty weeks would amount to 33*l.* 6*s.* 8*d.* which ſum would more than clear the expences of the boy, and of the extraordinary penn the firſt ſeaſon.

Where cattle are to be fed on turnips, they may be treated in the ſame manner as ſheep, provided the land be dry.

Having ſo plainly demonſtrated the ſuperiority of turnip-culture by the drill, it would be ſuperfluous to ſay more of the broad caſt. The latter method will, I hope, be

be exploded by every Farmer who can prevail upon himſelf to give the former a fair trial. To render what is above recommended more eaſy and no leſs profitable, it may be proper to plant, along with the turnips, in the middle of the field, a proper ſpace (proportioned to the ſize of your flock) with potatoes, which might be taken up at the proper ſeaſon; and the vacant ground would ſerve for the ſheep to paſs to and fro to eat their food. To preſerve the potatoes from froſt, make them into what we call a *pie*: a term well underſtood in Yorkſhire; but perhaps not very intelligible in other parts of the Iſland. For the manner of making ſuch *a pie*, ſee Section XVII.

Potatoes might be given to the ſheep in froſty weather, when it would be difficult to move the trays or penns. They might be given in the ſpace where the turnips had been. If you have more potatoes than neceſſary for the ſheep, you may feed milch-cows with them; as milk and butter are far better from potatoe-food than turnips. In fact, potatoes are excellent food for cattle of all kinds.

SECTION XIII.

Beſt Method of Seeding Land; Quantity neceſſary, and proper Sort for every Soil.

THE beſt method of ſowing ſeeds, if with barley or any ſpring crop, is to ſow them after the corn is in, and the ground is harrowed to a fine mould. After ſowing them, it is a good method immediately to buſh-harrow, and to roll the earth; for from want of ſuch precaution many of them fail of producing the expected crop; as, not being ſufficiently fixed in the earth, they are liable to be over-ſcorched by the ſun, or deſtroyed by birds or otherwiſe. This rolling and buſh-harrowing not only prevents, but likewiſe aſſiſts in reducing the mould to a more equal degree of fineneſs and ſmoothneſs.

On land of any kind, intended for paſture, my practice is to ſow four buſhels of rye-graſs, ten pounds of trefoil, and ten pounds of white clover, per acre. If the land is intended to be mown, and it is required

quired to have rye-graſs; one or two pecks of that ſeed is ſufficient, with ten pounds of red clover, and ſix pounds of trefoil, per acre.

If the rye-graſs is omitted, but the crop intended for mowing; fourteen pounds of red clover, with ſix of trefoil, per acre, will be neceſſary.

If ſeeds are ſown in ſpring, upon land ſown with wheat the preceding autumn, the following method will beſt cover them. Harrow the land, if it will bear it, and roll it immediately after. If the wheat is to be eaten with ſheep, ſow the ſeeds; then lay on ſuch a number of ſheep as will tread the land ſufficiently within two or three days. A large flock will eat the wheat within that time, and tread the ſeeds into the earth far better than if you put in half the quantity of ſheep, and let that half remain double the time; for they eat the weakeſt wheat firſt, and let the ſtrong alone: therefore the greater the number of ſheep the better. When they are taken out, buſh-harrow and roll immediately.

Of ſaintfoin ſow not leſs than five buſhels, and from that to eight buſhels, per acre; though four buſhels is the uſual quantity: for as ſaintfoin is intended to be mown for a number years, the difference in the expence of the ſeed, at firſt ſowing, is trifling, when it is conſidered, that by ſowing the quantity recommended you may get every year one ton of hay more per acre, than by ſowing four buſhels only. I never knew an inſtance of a crop of ſaintfoin, or any other graſs, being injured by ſowing the ſeed thick.

Saintfoin ſhould be ſown in a clean fallow, upon a ſpring crop, and harrowed in and rolled immediately. Almoſt any ſort of ſoil that has a rocky bottom, or a white clay, is proper for it; but it will not thrive well except upon land with a firm bottom. Saintfoin certainly finds food in ſtone, as in the ſoil it is partial to there can be little or no food in the ſurface, eſpecially for ſuch a number of years. I have been told that where ſtone-quarries have been made after ſaintfoin has grown on the land, the roots have been

been found to ſtrike ſeveral feet down into the rock. This is a profitable herb, far exceeding any yet propagated on poor land: no other is ſo beneficial to the farmer, according to the value of the land it is ſown upon; but great care muſt be taken, if manure be laid upon it, that ſuch manure be as clear from graſs-ſeeds of different kinds as poſſible; for ſaintfoin is very liable to be injured by adventitious ſeeds getting amongſt it. Pigeons' dung, rape-duſt, malt-combs, ſoot, or almoſt any *hand-manure*, are proper. Saintfoin, if properly ſown and on ſuitable land, will bear good crops from ten to fourteen years; may be eaten with ſheep for three years afterwards, and will maintain three times more ſtock than the produce of the land in the natural ſtate. I have known it mown for fourteen years. The firſt year there will always be a thin crop; but the ſucceeding ten years it has yielded upwards of two tons per acre, on land which at this time is not worth more than five ſhillings per acre for any other uſe. Saintfoin ought always to be pre-

ſerved for mowing. The method of treating it is as follows:—If ſown in the ſpring with barley; when the barley is mown, the ſtubble muſt be left high. It would be much better if the barley were ſhorn, as the ſtubble would then afford ſhelter for the plant during winter. Rake the ſtubble off in the ſpring; but put no ſtock upon it from the time of harveſting the barley to the time of mowing the firſt crop, which, as I ſaid before, will not be abundant. In the month of September there will be after-graſs, which may be depaſtured by ſheep and beaſts, but not by horſes. Sheep muſt not be kept on it after the froſt ſets in; for, by eating too near the root, at the latter end of the year they will do the plant much injury. This caution is, therefore, abſolutely neceſſary.

No ſtock muſt be put upon this graſs in the ſpring; and it will be ready to mow early in ſummer, moſt probably in the beginning of June. It muſt not be ſuffered to grow too long before it is mown, or many bad conſequences may enſue; for the root is thereby exhauſted, and the duration of the plant

plant much ſhortened. If full blown, the ſpirituous and nouriſhing juices are ſpent and loſt, the ſap is impoveriſhed, and the hay deſtitute of that richneſs which it poſſeſſes when cut early. But, above all, it ſhould be mown before any of the flowers begin to decay. It is impoſſible to get this kind of hay over-green; but care muſt be taken that it be well dried. Very moderate care will ſuffice for that purpoſe, as from the ſtalkineſs of the plant the air has a freedom of circulation when the hay is in ſmall cocks. But if it be laid up rather green, it will be adviſable to have a chimney, or vent-hole, from the bottom to the top of the rick, through which the ſuperfluous moiſture may exhale; and when the heating is over, the rick muſt be thatched. All ricks of this hay perfectly dried ought to be thatched with as much expedition as poſſible after they are made. That which is put into the rick perfectly dried, will cut out of a green colour; but that which has been laid up over-moiſt, will be liable to heat much, and conſequently become brown.

Saintfoin (ſo much eſteemed in France, that our Gallic neighbours have canonized it by adding the epithet *holy*) is for horſes undoubtedly the beſt hay hitherto known. Many farmers keep them the whole winter upon it without much corn, and the horſes are fat and fine as hunters. Poſt-horſes thrive well upon it, and, next to corn, nothing will keep them in ſuch good heart. It is excellent for ſheep, but not proper for cows. If the crop has been ſuffered to remain until it was ripe, and the hay be threſhed for ſeed, it ſtill is fit for horſes, and may be cut into chaff, and will give as much nouriſhment as treble the quantity of chaff from ſtraw. If the farmer has a redundancy of ſeeds after threſhing, they may with great advantage be given to horſes in lieu of corn, in the proportion of *three* to *four*.

By mowing this graſs early in the ſummer, the eddiſh or after-graſs will ſpring immediately, and be ſoon fit to be depaſtured; and the ſtock may be taken out ſooner in the autumn. It has been objected, that ſaintfoin is a great impoveriſher of land; but

but I requeſt thoſe who have adopted ſuch an opinion upon truſt, to keep a debtor and creditor account: for I inſiſt that no plant in uſe will improve land ſo quickly, with ſo great a profit, at ſuch a ſmall expence. If we conſider, that two tons of hay will make three loads of excellent manure; allowing one load of ſtraw to litter the horſes, there will remain two loads of manure yearly to the account of the ſaintfoin, for each acre. The poor land upon which this hay is grown would not produce one ton of hay from natural graſs in ten years; but by being ſown with ſaintfoin it is capable of raiſing within that period twenty loads of manure of an excellent quality. In the natural ſtate of the land, it would not raiſe more than one load of manure in ten years, and even that of ſuch a quality as to be worth little or nothing. When ſaintfoin is exhauſted and ploughed up; from the ſaintfoin ley the firſt crop ought to be wheat dibbled, or peas. If you plough early in the winter to let the froſt act upon the land; and in the ſpring drill, and manure with four loads per acre

of its own manure, and ſow the peas as directed in ſection XLV, a productive crop would follow. We have now, for the ten years, ſixteen loads of manure remaining on hand for each acre. The next winter a fallow for turnips. Debit for ſix loads more manure per acre for a crop of turnips, drilled and eaten off with ſheep, which would put the land in a proper ſtate for barley and clover. We can then afford to manure the young clover in the autumn, with the remaining ten loads; but five loads made into compoſt would be ſufficient, and bring a very luxuriant crop; and there being ſo much manure in the land, we may expect good wheat. After this we ſhall have another turnip fallow; and having lent to the farm in general a crop of pea-ſtraw, a crop of barley-ſtraw, a crop of clover, and a crop of wheat-ſtraw, all this ſtuff may raiſe ten loads of manure. We therefore call for ſix loads for each acre again, and have another turnip crop, then barley and graſs-ſeeds for ſheep, if required. Now we have four loads of manure (or nine, if the compoſt be

uſed

uſed in the clover crop) owing to every acre of land; we have received no intereſt for the uſe of the ten crops of ſaintfoin manure, nor of the peas, barley, clover, or wheat; the intereſt of ſuch manure being lent during that time. If we ſay, four loads per acre ought to be paid in lieu of intereſt, it will be much below the quantity: but we will eſtimate it at only four loads, and we ſhall then have eight loads (or thirteen) to lay on our young graſs-ſeeds, which are to be depaſtured by ſheep for two years, and then ploughed up again, &c.

After this fair ſtatement, who ſhall ſay ſaint-foin is detrimental to land? But, as a further elucidation, we will ſuppoſe a gentleman to grant his tenant a leaſe for twenty-one years, with free liberty to follow the method here laid down; and another gentleman to retain the ſame quantity of land in the natural ſtate, for the like term of twenty-one years. We allow freſh land to bring more luxuriant crops than old going land; but I dare ſay every one will allow the land that has been ſown with ſaintfoin,

which

which is now ready to enter upon in freſh ſeeds with eight loads of manure upon it per acre, will at leaſt feed ten ewes and lambs on each acre for two months, four ſheep for the reſt of the ſummer, and two from that time until Chriſtmas.

Now on the other hand, what will the land of the ſame quality do in the natural ſtate? During the twenty-one years it has not kept any thing in the winter ſeaſons, and not more than a ſheep per acre in ſummer.

The ſuperior advantages ariſing from a rotation of ſaintfoin and other crops for twenty-one years will appear clearly from the following ſtatements.

Account of Expences and Profit on an Acre of Land, ſown with Saintfoin and other Crops, according to my Method.

Dr. to EXPENCES.	£.	s.	d.	*Cr. by* PRODUCE.	£.	s.	d.
1ſt Year, TURNIPS.							
To paring and burning	1	1	0	By turnips	2	12	6
To ploughing and ſeed	0	6	0				
To hoeing	0	5	0				
To rent	0	5	0				
To aſſeſſment	0	5	0				
£.	2	2	0	£.	2	12	6
2d Year, BARLEY.							
To ploughing and ſowing	0	6	0	By three quarters of barley, at 25s. per quarter	3	15	0
To ſeed, three buſhels	0	10	0				
To ſaintfoin ſeed	2	10	0				
To rent and aſſeſſment	0	10	0				
£.	3	16	0	£.	3	15	0
3d Year, SAINTFOIN.							
To rent and aſſeſſment	0	10	0	By one ton ſaintfoin hay	4	0	0
To mowing, &c.	0	5	6				
£.	0	15	6	£.	4	0	0
4th Year, SAINTFOIN.							
The expence will be the ſame ſo long as the field is in ſaintfoin	0	15	6	By two ton of ſaintfoin hay	8	0	0
				By eddiſh	0	10	0
£.	0	15	6	£.	8	10	0
£.	7	9	0	£.	18	17	6

Dr. to EXPENCE.			*Cr. by* PRODUCE.		
Brt. over £.7 9 0			Brt. over £.18 17 6		
5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, which is ten years expences.					
	£.	s. d.		£.	s. d.
Rents, assessments, &c. 15*s.* 6*d.* per year	7	15 0	By ten years hay and eddish, at £.8 10*s.* per year	85	0 0
£.7	15	0	£.85	0	0
15th, 16th, 17th, Depastured with SHEEP.					
Rent and assessment for three years	1	10 0	By one ewe and lamb per acre, for three years	3	0 0
£.1	10	0	£.3	0	0
18th Year, PEAS in Drills, or WHEAT dibbled.					
To ploughing and harrowing	0	7 6	By three quarters of peas	6	0 0
To four loads of manure, leading, &c.	0	3 6	By straw	1	0 0
To seed peas, one sack	1	3 0			
To rent and assessment	0	10 0			
To reaping and threshing	0	5 0			
£.2	6	0	£.7	0	0
£.19	0	0	£.113	17	6

Dr. to EXPENCE.			*Cr. by PRODUCE.*		
Brt. over	£.19	0 0	Brt. over	£.113	17 6
19th Year, TURNIPS.					
	£.	s. d.		£.	s. d.
To two ploughings and harrowing	0	15 0	By turnips	3	0 0
To drilling	0	2 6			
To manure, leading six loads	0	4 6			
To sowing seed, and harrowing	0	1 0			
To hoeing	0	3 0			
To three ploughings	0	4 6			
To rent and assessments	0	10 0			
	£.2	0 6		£.3	0 0
20th Year, BARLEY.					
To ploughing and harrowing	0	6 6	By barley, four quarters, at 25*s.* per quarter	5	0 0
To one sack of barley	0	12 6			
To one quarter of rye-grass, and ten pounds of white clover, and ten pounds of trefoil	2	10 0			
	£.3	9 0		£.5	0 0
21st Year, in SEEDS.					
To rent and assessment	0	10 0	By profit on sheep	4	0 0
	£.0	10 0		£.4	0 0
	£.24	19 6		£.125	17 6
Profit in 21 years	£.100	18 0			
	£.125	17 6			

Account of Expences and Profit on an Acre of Land, left in its natural State.

Dr. to EXPENCE.	£.	s.	d.	*Cr. by* PRODUCE.	£.	s.	d.
To rent and aſſeſſments for twenty-one years	10	10	0	By twenty-one years herbage, one ewe and lamb, on an acre in the ſummer, and nothing in the winter	15	15	0
To profit in twenty-one years	5	5	0				
	£.15	15	0		£.15	15	0

There is then a clear profit of £.100 18*s.* upon one acre by my method of cropping, for twenty-one years. I do not think it is poſſible to apply this ſort of land to a better purpoſe, when a farm can ſpare a proper quantity of it for that uſe. In the natural ſtate it has paid £.5 5*s.* in twenty-one years, which is juſt 5*s.* per acre, and as much as can be expected.

Red clover ought not to be ſown but where the land is intended to lie for only one year. It is, in my opinion, the beſt preparation for wheat, when the ground it is ſown upon is perfectly clean; but by no means

means ſo, when the land is foul and full of couch-graſs, &c. The ſeed ſhould be ſown with the ſpring crop of barley or oats. The clover crop lies eighteen months, after which only one ploughing will be requiſite before the field be ſown with wheat. The wheat will be about ten months on the ground; and it will be two months after the crop is reaped, before it be fallowed for turnips, &c.; which together makes a period of thirty months for one ploughing. By letting the clover crop lie 18 months, the couch-graſs gets a very ſtrong root; and, when the land is ploughed for wheat, and the ſoil lightened, that pernicious weed will ſpread rapidly around. Therefore all poſſible care ſhould be taken to clean the field thoroughly, before it is ſown with turnips, and made ready for barley and clover; for, if you neglect the opportunity of doing it at that time, you will not have another before April three years after.

Red clover is properly a native of a clay ſoil; but will ſucceed upon almoſt any, in proportion to the goodneſs of the land. It

is improper to be ſown with graſs-ſeeds, when intended for paſture or meadow; for, as it has a root not only very large, but likewiſe very broad at the bottom; and as it tillers very much, it muſt of courſe obſtruct their growth. Trefoil is very proper to be ſown with red-clover; as trefoil grows with a ſmall vine-like fibre, which runs up with the clover ſomething like rodded peas. By that means, the crop, from the ſupport it receives from the clover, becomes fuller and more weighty, and the hay much better than it poſſibly could be without ſuch aſſiſtance.

Clover may be depaſtured in the autumn by ſheep; and even in ſpring, if abſolute neceſſity ſhould require it; but it is better, if poſſible, not to admit them to it at that ſeaſon. The beſt crop of clover I ever had was from letting turnip-ſheep run at leiſure upon a field of it, for about four months in the winter. It conſiſted of about twelve acres, ſituated at the corner of a ſixty acres' walk; and being ſhort of fencing, and the reſt of my clover very good, I thought I would

would run the riſk of ſpoiling the twelve acres. Three hundred ſheep ran upon it until the twentieth of February. They were then moved from it, and at the time they were taken away, you could not at a few yards diſtance diſcover the piece to have been clover—in ſome places, not even if you walked over it. But when it was mown, it turned out, as obſerved above, the moſt abundant crop I had ever obtained. I do think, there were two tons and a half per acre. On the above experiment I have to remark, that the ſheep, by running and lying on the clover, and there depoſiting their excrement, deprived the barley land of its manure; and that it furniſhes a ſtrong proof of what manure is capable of performing; for, had thoſe twelve acres been eaten by only as many ſheep as they would have kept, the crop in all probability had been ſpoiled.

When clover is to be followed by wheat, it is better to mow it twice in one ſummer; as mowing will not only clear the land of weeds, but will render it more mellow, and

pulverize it for the reception of the wheat. For, if the ground were at that ſeaſon of the year, after the firſt mowing, totally covered with a ſtack of ſtraw, it would produce better wheat. I once had a proof of this, by ſtacking ſome woodkids or faggots upon a part of the land where clover had been mown once. The ſtack remained until the time of ſowing wheat; and on the ſpot where it ſtood was by far the beſt wheat in the field.

I have had many inſtances of clover being better for twice mowing. I have tried experiments, by eating one part with ſheep all the ſummer, cropping or mowing a part, fencing another part, and eating with ſheep after mowing. Another I mowed once, and then attempted to get ſeed from the after-crop. The ſeaſon ſetting in wet, I mowed and took it off for manure into the fold yard. I then ploughed the land, and ſowed it the next day; and that part of the field produced by far the beſt crop of wheat, in reſpect both to quantity and goodneſs of grain. I have ploughed the ſecond crop of clover in;

in; but I never found any benefit from that.

When you intend the red clover for hay, you muſt watch very cloſely in reſpect to the time of cutting; for, ſhould you mow it too ſoon, and the weather turn out wet, the crop would quickly receive damage, and be a long time getting ready for ſtacking. If on the contrary you let it ſtand too long, until the leaf, which is the beſt part of the clover, begins to fall, it makes the ſtalks ſtumpy, and you ſuffer great loſs by the dropping of the leaf, and by the waſte of the moſt pleaſant and nutritive part of the hay. It certainly is preferable to be rather too ſoon, than too late, in mowing. For, though clover ſhould be harveſted dry, it ſhould be preſerved green, ſo as to admit of one fourth part of wheat-ſtraw being added to and ſtacked with it, by alternate layers of hay and ſtraw. The conſequence of this management will be, that, from the ſweating of the clover in the ſtack, the ſtraw will imbibe the ſubtil odoriferous effluvia of the plant, and be in ſome degree impregnated with the oily

vapour that exhales from the clover, which without ſuch precaution would be diſſipated and loſt. When ſuch hay and ſtraw are cut together, they make better food than clover and ſtraw cut ſeparately into chaff. For, from the quantity of oil this plant abounds with, and from the frothineſs of its nature, it is not adviſable to give a horſe deſtined to work hard too great a quantity, without an allay of one half ſtraw, to cool him and aſſiſt in promoting a regular digeſtion.

Great care muſt be taken to put no more ſtraw into the ſtack than the clover will bear, ſo as not to prevent the whole from taking a regular and neceſſary heat. This method is attended with another advantage; you may ſtack your clover without fear of danger from heating to exceſs, many days ſooner than you otherwiſe could have done. When I ſpeak of giving an *equal* quantity of ſtraw with the clover to horſes, I do not mean that as much ſtraw as clover ſhould be put in the ſtack; for that would entirely prevent it from heating. As clover is not much ſafer in the cock than in the ſwathe,

the method I recommend will be found uſeful; for, as ſoon as the clover is fit to cock, you may ſtack it, and by that means often ſave the crop, inſtead of running the riſk of many days' delay, by waiting to ſtack it according to the old method.

I have found it beneficial to ſow rye-graſs with clover, by way of making it hardier to harveſt; but rye-graſs is an enemy to the following crop of wheat, and wheat ſtraw is more beneficial when put in the ſtack. Rye-graſs is a ſort of graſs I am very partial to: but no doubt I ſhall find many differ with me in opinion. However, I by experience know that one acre ſown for ſheep with rye-graſs, white clover and trefoil, will maintain a proportion of three to two ſheep more than with any other kind of graſs, or mixture of graſſes, I know of. When I ſay *of three to two*, I mean for twelve months; as rye-graſs is both the earlieſt and the lateſt. In the ſpring it cannot be eaten too early, if the animals can but live upon it; for, if it be ſuffered to ſpindle, it will be exhauſted before the

ſpring, or beſt ſeaſon, is over: on the contrary, if eaten cloſe, it will keep continually ſpringing, as cabbages ſprout after being cut; and the more it is eaten, the more it will grow.

At the time when the rye-graſs is ſo very luxuriant, the white clover is totally concealed in the ground, but the trefoil makes ſome ſmall appearance; and when the rye-graſs has done all that can be expected, the trefoil ſprings up and becomes food for the ſheep; after which the white clover ſucceeds, and in like manner ſupplies the ſheep or cattle. When the white clover is done, the rye-graſs again ſprings up, and continues growing all winter, if the weather prove tolerably open. At all events, it will grow if any graſs *can grow*.

If you intend it for meadow, and ſow one ſack upon an acre, it will be like throwing the ſeeds of the trefoil and white clover away; as rye-graſs, by ſpringing ſo early and by ſmothering the land, prevents the others from growing to any degree of perfection.

The ſeed of rye-graſs is rarely to be found

found pure. Much of what is ſold is, in general, a mixture of ſwine-graſs, couch, and ſeveral other noxious ſorts: and this is the reaſon why this ſeed is ſo generally diſliked, and why rye-graſs is ſaid to fill land full of twitch or couch-graſs. But this is an erroneous opinion; for rye-graſs will no more produce twitch than it will produce wheat. Therefore the farmer muſt either have ſown the ſeeds of twitch with the ſeeds of rye-graſs; or, at the time he prepared the land, muſt have left the plants or ſeeds of twitch in the ground. The fact is, that great part of the ſeed ſold for rye-graſs, is in reality chiefly that of twitch; for this kind of ſeed is moſt frequently raiſed by the lower ſort of farmers, who, not having money ſufficient to purchaſe ſtock for the purpoſe of eating the herbage, meadow it, and let it ſtand for ſeed, crops of which it will produce for many years. But, if there be any twitch when the rye-graſs is firſt ſown, the twitch, as being more luxuriant, will increaſe the faſteſt, and in length of time get into ſole poſſeſſion of the field. At preſent, there

there is very little land in England without twitch, I know no herb which increaſes ſo rapidly, or which it is ſo difficult to deſtroy.

To enable the farmer to diſtinguiſh rye-graſs, it will be neceſſary to deſcribe the ſeed. Real rye-graſs has ſeed ſomething like rye, ſhort and black-hearted, very full of flour and very heavy, as it will weigh from eight to nine ſtone per ſack, reckoning fourteen pounds to the ſtone, and four buſhels Wincheſter meaſure to the ſack. The ſeed of couch-graſs is longer and lighter, the root of the plant joints, and ſo do the branches, and it is ſo ſucculent that every joint will emit a root. There are a great many ſpecies of it. As this plant is ſo abundant, the earth no doubt is ſtrongly impregnated with the ſeed, which renders the total eradication of it next to impoſſible. But yet, although it cannot be totally deſtroyed, it may by good management *be kept under*.

On my return from valuing an eſtate in the county of Lincoln, I paſſed over ſome land rented by a farmer, and there ſaw the moſt prolific crop of twitch I ever before had met with. I believe that, had the roots been

been carefully collected, dried, and ſtacked, they would have proved more abundant, and formed a much larger ſtack than any quantity of hay that could have been raiſed from the ſame piece of land by the art and induſtry of man. The roots, in light ſoils, run in a moſt aſtoniſhing manner, much more than I thought poſſible until I ſaw the above-mentioned field. I was told however, that it had been ſown with what had been called rye-graſs ſeed, and that the farmer had likewiſe ſold as ſuch the ſeed produced from it. No wonder twitch is ſo common! I do not ſuppoſe one ſingle acre of rye-graſs in the kingdom is to be found without it; becauſe ſo little care is taken in ſelecting the ſeed, in the choice of which much knowledge and great circumſpection are neceſſary. Rye-graſs is a very fine graſs with a ſmall buſhy root, full of fibres, but ſhort; and, when the land is ploughed up and ſown with corn, may be deſtroyed with as much eaſe as clover. But as it ſeeds every year, there will undoubtedly be much of the ſeed ſhed, which will appear in the enſuing crops.

Rye-graſs is thought to impoveriſh land; but (allowing this to be true, which in many caſes may be owing to the quantity of twitch ſown with it) the returns, and the great quantity of ſtock maintained by it, fully compenſate for what it takes from the land. It may not be ſo proper to ſow wheat after rye-graſs, as it is a ſort of white crop like wheat, and requires the ſame kind of nouriſhment. It may be better followed by a crop of peas: but I prefer wheat dibbled.

Rye-graſs, if mown for hay, ſhould be cut when in bloſſom, and got in green. The hay made from it does not heat or ſweat much, and is very good for horſes, but not for ſheep or cattle. If it is ſuffered to ſtand too long before it be cut, the ſeeds rob the plant of the juices, and leave it no better than wheat or rye-ſtraw.

Clay land is moſt proper to raiſe the ſeed of rye-graſs upon; as twitch-graſs does not delight in, and may with more eaſe be cleared from, ſuch ſoil, than from any other. I have known a ſtrong clayey land laid down very

very full of the roots of twitch-graſs; and, by the ſucceeding ſummer proving dry, and ſheep treading the ground, and eating the graſs bare, it has, when ploughed up, been nearly clear.

Rye-graſs is not ſo proper to be ſown for mowing, for it tillers very little, but readily ſhoots up; and, if depaſtured, it will branch for along time before it runs into ſeed. To prevent this, you muſt crowd it with different kinds of ſtock, ſuch as ſheep, beaſts, and horſes; and if of different ages, they will be more likely to clear the land by eating the crop clean off; for if it be ſuffered to run to ſeed, the root becomes exhauſted. If, in ſpite of the ſtock you have put on, you find a diſpoſition in the graſs to ſeed, increaſe the number of horſes, which are the only animals that are fond of it when ſeeding; and you may diminiſh the number of ſheep, for in that ſtate of the plant they derive but little nouriſhment from it, as few leaves are then left upon the ſtem; which is one reaſon for ſowing trefoil and white-clover with it.

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Trefoil is eſteemed a bitter plant, and ſheep are thought not to be fond of it; but I muſt own that nothing within the compaſs of my experience has led me to adopt this opinion. Trefoil grows about a month earlier than white-clover, and long before the rye-graſs is exhauſted. It is improper to be ſown alone, except for the expreſs purpoſe of raiſing ſeed. There are no ſoils proper for trefoil but what will produce rye-graſs and white-clover. Hay made from trefoil only is a pretty hay, but not very abundant in the produce. I am of opinion I could raiſe more trefoil on any given quantity of land, by ſowing rye-graſs amongſt it than without; for, as before obſerved, trefoil, like the vine and pea, wants ſupport from ſome ſtronger ſubſtance it may cling to. For this reaſon it will alſo proſper well with red-clover, around which its tendrils will twine like woodbines in a thorn hedge. I alſo do believe that the crop of clover will be very little leſs in quantity or weight from the trefoil growing amongſt it.

The after-graſs of trefoil is worth very little;

little; for which reaſon ſome people recommend it to be followed by wheat. But I can aſſert from continued experience, that land intended for wheat cannot poſſibly be too much ſmothered with crops of every ſort.

White-clover is thought to be an herb that ſheep are very fond of: I believe they may; but I do not eſteem it much. It is a tardy plant, and yields but a ſmall quantity of hay in compariſon with many others. In quality it is of a fattening nature (which may partly ariſe from its ſpringing ſo late in the ſeaſon); but I never found it ſuperior in any reſpect to red-clover; nor do I think it near ſo uſeful. Red-clover, when made into hay, is excellent food for all ſorts of animals. White-clover grows only about two months with any degree of vigour, and requires much warmth before it ſprings up. It will grow upon any ſoil; for all ſoils contain its ſeed. The barren commons near Buxton in Derbyſhire, when limed, will produce fine white-clover: and we are ſure that no ſeed has been ſown upon

upon it except by the hand of Providence; for it is well known that lime paſſes through the fire before it is uſed as manure, and conſequently cannot contain ſeed of white-clover, or of any other plant. The uncultivated land in North America abounds with white-clover. The earth, indeed, ſeems to have been impregnated with its ſeed from the creation; as any kind of land, when manured, will produce it. From curioſity, I took a dry clod of clay, pounded and ſifted it, and found white-clover ſeed. I then put the whole of the pulverized matter into a garden-pot, and had the ſatisfaction of ſeeing white-clover ſpring up. Almoſt every herb delights more in one kind of ſoil than in another: but I believe white-clover to be the leaſt partial of any. Few animals like the nap of white-clover: you ſee it in every paſture remain until the ſeed is perfectly ripe, when it drops on the land and remains until by ſome movement of the earth a ſmall fermentation is cauſed, and vegetation takes place. One load of manure put in a ſtate of fermentation into the land, is of double

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the value of the ſame quantity, after it has been ſuffered to lie until all fermentation is over, and has ſhrunk to one half its bulk.

White-clover has been by ſome ſuppoſed to cauſe the rot in ſheep. But in that caſe all the land in the world, capable of feeding ſheep, muſt cauſe the rot. On the contrary, I am of opinion this diſtemper is not occaſioned by any ſort of herb, but by a kind of egg or ſpawn, frequently depoſited in very ſmall ſtagnant ſwamps of water. Theſe the ſheep ſwallow, and are not able to digeſt: the liver affords them a neſt in which they are hatched, and where the animalculæ produced from them dwell, derive nouriſhment from the blood, and increaſe in bulk.

Having ſaid ſo much on the three plants, rye-graſs, trefoil, and white-clover, under their ſeparate heads; we ſhall now conſider them jointly. It is well known that all land will be more profitable by having a green crop one year, and a white crop another; and ſo on alternately: therefore, as rye-graſs is a kind of white crop, like wheat

or rye, and drawing a nouriſhment different from that of trefoil or clover; it will, no doubt, be admitted that the three are proper to be ſown together, and that they are thus likely to be more productive than any one of the ſorts ſown ſeparate; for they aſſiſt each other, like true friends, throughout the ſeaſon. Rye-graſs, by far the hardieſt, peeps forth and ſoon rears its head in the ſpring: as the mild weather advances, trefoil comes forward: and laſtly the warm ſeaſon uſhers in white-clover. At the time the white-clover approaches to maturity, the ſun has a ſcorching power extremely detrimental to it: but the miſchief is prevented by the ſhade which the bent of the rye-graſs affords it.

Hay-ſeeds are very properly ſo called; for they are indeed the ſeeds of hay, and conſequently a collection of good, bad, and indifferent ſtuff. They are ſcarce ever to be met with free from a noxious mixture. How ſhould it be otherwiſe? By far the greateſt part of them are collected at inns in market-towns. The maſter of the inn buys

the

the coarſeſt hay he can procure, for fear his cuſtomers' horſes ſhould over-gorge themſelves. One may often hear ſome of theſe landlords ſay: "*That* hay is too good for our market-horſes." So he buys any rubbiſh, provided it is not mouldy. The oſtler threſhes the hay before he gives it to the horſes, and ſells the ſeeds as part of his perquiſites. Can the buyer then wonder at having a plentiful crop of twitch and other baneful weeds?

To procure the hay-ſeeds clean, the meadow ought, in ſummer, to be moſt carefully weeded. The maſter, or a man in whom he can confide, ſhould watch with a ſtrict eye over the people employed to weed; and the graſs ſhould be ſuffered to ſtand ſufficiently long to ripen the ſeed before mowing, ſo as not to heat over much in the ſtack or mow. Some of the ſeed will of courſe be deſtroyed by the heat: but it is the buſineſs of the grower to take care that as little be damaged as poſſible. When a ſtack of good hay is opened, the beſt judge can hardly diſtinguiſh the ſeeds that will grow

from thoſe which have been ſpoiled by too much heat: neither is it an eaſy matter to aſcertain the exact degree of heat neceſſary to the perfection of hay.

Unleſs the farmer can depend upon his ſeed, how is he to know the quantity proper to be ſown per acre? It is very common to hear him complain: "I ſowed ſuch a quantity of ſeed upon the land; but very little has grown!" Perhaps the ſeed was good for nothing—the land may not have been in a proper condition to receive it—or froſts may have deſtroyed it. The miſſing of a crop is moſt probably owing to want of care in the proceſs; for we know that ſeed will vegetate when put properly into the earth, provided the heart or germ of ſuch ſeed be not injured.

It may not be ſuperfluous to obſerve, that hay-ſeeds, although light in themſelves, have conſiderable gravity compared with the chaff or hulls which incloſe them. It is the cuſtom to dreſs theſe hay-ſeeds by a gentle wind; and the very *lighteſt* are ſold, though they conſiſt of ſcarce any thing but chaff.

chaff. The ſower ſcatters, perhaps, eight buſhels of this ſtuff per acre. But, alas! he ſcratches his head with aſtoniſhment at having miſſed a good crop. However, as we take it for granted he ſowed little elſe than chaff, had he ſpread eighty buſhels per acre, the diſappointment would have been nearly the ſame.

When I firſt commenced farmer I did like my neighbours, and pinned my faith upon him who was moſt eſteemed as a good manager. When I ſaw ſome extraordinarily good graſs, I enquired how the owner managed it. I ſoon found that men of acknowledged abilities and experience differed in practice; and it ſtruck me that it might be poſſible to form a ſyſtem of my own, that I might avoid ſome things which they were wedded to by cuſtom, but which I ſaw ſtrong reaſons to diſapprove. In ſhort, being determined to think for myſelf, I tried a great number of experiments, and never ventured to recommend any new method to others until I had full proof of its efficacy from my own trials.

In time of ſeed-ſowing a dealer will offer hay-ſeeds for ſale, and will aſſert their goodneſs, though all his knowledge centres in having looked at them. If they are fair to the eye, that, in his opinion, conſtitutes perfection.

From the character I bear amongſt the farmers of that part of the country I dwell in, I am ſuppoſed to underſtand ſeeds; and I have been frequently applied to by the dealers or venders for my approbation of their wares; as they thought, that, if they could obtain my recommendation, they would find a ready market for them. I muſt own that I have frequently diverted myſelf with the embarraſſment of theſe dealers, by taking out a ſeed promiſcuouſly, and enquiring the name of it. "Indeed, ſir, I cannot tell!" is generally the anſwer. What will it produce? "Oh, ſir! that is quite uncertain." Nor does he know any one except the rib-graſs, which is the plantain with a long leaf, and which of all graſſes I think the very worſt.

It would be a good method, and eaſily

accompliſhed, if a perſon would pick from a good meadow ſome of the very beſt ſeed; then dreſs a ſmall piece of land perfectly clean, as much ſo at leaſt as you would for the choiceſt flowers in the garden; ſow your ſeeds, and ſave the produce. They will quickly increaſe ſufficiently to ſow a large field; and by a proper degree of attention in eradicating weeds you will ſoon have moſt excellent graſs, and a conſtant ſupply of good hay-ſeeds, ſuch as are not now to be met with. In all probability nothing in the farm would be found more advantageous than a meadow of ſuch ſort of graſs; for, if the farmer had more ſeed of this kind than neceſſary for his own immediate uſe, he would find purchaſers in plenty who would be glad to get it by paying a good price. Indeed, I recommend to the poſſeſſor of a farm of conſiderable ſize to grow all his own ſeeds of every ſort or denomination; as it is a ſafe way, and a great ſaving.

There are men who are bigoted to an opinion abſurd in the extreme: They ſay,

"Land ought to be ſown with the ſame as it produced before ploughing." But I ſay, No; unleſs it produced better graſs, or at leaſt as good as may be got elſewhere. Land of almoſt every ſort will improve by being ploughed up, provided ſufficient care be taken to make the ſtraw into manure, to lay it on in a proper manner, and to ſow the different crops with judgment. All theſe things have been formerly but little attended to.

A piece of land laid down, and ſown with graſs-ſeeds to lie for ſward, will, from having been ploughed and managed according to my rules, be enabled to produce better graſs than it did before, and of courſe will keep a greater number of ſheep, cattle, horſes, &c. than if laid down with ſhear-graſs, moſs, ling, goſs, &c. &c.

If a gentleman ſuffers his tenant to plough up a piece of rich paſture-land with the intention of taking ſix or eight crops from it; in all probability the tenant has ſome poor worn-out ploughed land, and he makes the ſtraw which grows on the freſh, into

into manure, and lays it on the poor land. The tenant ſays, " The freſh land wants no manure;" and poſſibly he may be in the right. For, by beſtowing on the old ploughed land the manure ariſing from the new, he will derive from the former more abundant crops, and the latter will be ſufficiently prolific without manure. By this method the farmer may improve his whole farm, and enrich the poor land conſiderably, without impoveriſhing that which he may have recently broken up.

Were the freſh rich land to be repaid all the manure which the poor ploughed land has at a former period borrowed; the rich land would not be impoveriſhed by ploughing, but on the contrary much enriched. The tenant proves his own enemy, if he exhauſts the rich land by improper cropping, or by depriving it of all the manure which has grown upon it, to enrich other land. The landlord receives almoſt as much damage by this practice as if the ſtraw were ſold from that land for ſix or eight years; and the tenant, after the land has been nearly

worn out, probably lays it down with a bad kind of ſeed, or at leaſt ſomething which does not vegetate! He then applies to the landlord for leave to plough up another freſh piece; but the landlord, if he knows his own intereſt, anſwers "No! The cloſe I ſuffered you to plough, you have ruined; if I let you proceed, you will ſpoil the whole farm."

Suppoſe we lay down what is commonly called the worſt mode of culture; and begin by paring and burning—ſow with rape-ſeed, then wheat, then beans—the bean-crop in drills. We ſhall have ſix loads of manure per acre to lay in the drills, conſequently ſhall expect a very great crop of beans. Then wheat again—then a crop of oats—then turnips. Then we ſhall have ſix loads of manure from theſe beans, wheat, and oats, to lay on our turnip-fallow. The turnips muſt be eaten off by ſheep; and the next crop will be barley, and graſs-ſeeds to lay down for a time. Now there will have been the *aſhes*, and *twelve* loads of manure in ſix years, which together are equal

to

to *ſix* loads every other year; not taking into the account the barley-crop, the ſtraw of which will in all probability amount to two loads more of manure to return to this piece of land: and were the two laſt-mentioned loads worked up with freſh earth into a good compoſt, they would produce four loads. If the land were ſown with rye-graſs, trefoil, and white-clover, during the ſummer, as large a quantity of ſeeds would be ſhed as ever were ſown upon the land. If the compoſt were then ſpread (four loads per acre) and buſh-harrowed in, and the field not depaſtured during the winter; the ſeeds ſhed in the ſummer would vegetate, with the additional help and encouragement of the manure, and the land would be in no reſpect injured by ploughing.

Having explained at length the method of ſeeding land for graſs to lie for a conſiderable time, I recommend (as it is almoſt impoſſible to procure hay-ſeeds of a proper ſort, except by the mean above pointed out) rye-graſs, trefoil, and white-clover; but particularly white-clover, where land is

ſeeded

ſeeded to lie for a number of years. Not but that I think a ſkilful botaniſt might collect from meadows the ſeeds of many graſſes much preferable to rye-graſs, both for fattening cattle, and the long continuance of the crop, whether depaſtured or mown. Thoſe which abound more in leaf, which afford to the young ſpringing graſs more ſhade from the ſcorching rays of the ſummer ſun, and the ſucculent herbs, which collect the dews, and are ſo charged with nutritive juices, would no doubt turn to more advantage.

SECTION XIV.

Method of Stocking the Seeds, or Mowing; and the Difference in Profit.

THE method of ſtocking rye-graſs, white-clover and trefoil, is deſcribed under the foregoing article:

As to *red-clover*, it ought not to be eaten with any cattle whatever; for the young plants of clover are very tender. Above all, a horſe ſhould not be ſuffered upon it; for by

by treading he will ſpoil more with his feet, than he devours with his mouth. This is eaſily proved to any farmer who may doubt of the fact, by turning looſe any given number of horſes into any quantity of land ſown with clover; and, on the contrary, mowing an equal quantity, and ſtall or fold-feeding: he will find the advantage of fold-feeding to be four to one in his favour.

Cow-Graſs, being of the ſame nature, ought to be treated in the ſame manner as red-clover.

Lucerne ought not to be eaten while growing. It ſhould be mown, and treated like a garden. It produces a wonderful profit, if uſed for ſtall-feeding; and, after being mown, it will immediately ſpring up again from the ſtumps. In making it into hay it ſhould be treated like ſaintfoin: but care ſhould be taken to mow it before it flowers: it is a ſweet and very fattening food for cattle, who will eat it ſo greedily, that great caution muſt be uſed in giving them only a ſufficient quantity at a time; otherwiſe they will ſwell and overload their

ſtomachs

ſtomachs with it till they burſt, as they will with many other ſucculent plants. To avoid this, either give ſuch herbs ſparingly, or mow them the day before you uſe them.

White-clover ought to be eaten by ſheep.

Treſoil, which is itſelf a ſpecies of clover, ſhould alſo be eaten by ſheep; for, if either this or white clover is mown for hay, there will be much loſs in the crops. The beſt method, if intended for depaſturing, is to ſow it mixed with rye-graſs and white-clover: and if for mowing, with red clover. If for feeding ſheep or cattle, I think it beſt to mix red and white-clover together: but red-clover is the moſt fattening.

From the pulpy nature of clover, the feet of cattle, or horſes, as we before obſerved, will very much damage the plants. They bruiſe the young ſprouts, and bruiſe them ſo much as effectually to deſtroy vegetation, at a time, perhaps, when the root protruded the laſt ſhoot: and the farmer thus finds himſelf deceived in his hopes of abundance. Let him therefore depaſture it with ſheep, foals, calves, or ſome other ſtock of light

weight.

weight. A mixed ſtock of ſheep, young beaſts and foals will pay beſt. Pigs may likewiſe be turned in upon clover-fields: but it is more profitable to feed them in the fold, for many reaſons, which will be explained hereafter.

Yellow-clover is a ſort I do not like; it being of a very poor nature, and its increaſe not abundant, its leaf ſmall, and its ſtalk like wire.

SECTION XV.

Culture of Potatoes fully explained, by a new Syſtem, on all Sorts of Soils.

I HAVE derived the greateſt profits from planting the potatoes thick; nor do they thrive better by any method than by ploughing ſward very thin, and ſetting them under furrow about nine inches aſunder. They do not thrive well when encumbered with too great a weight of earth: when ſet under the ſward, one furrow bearing upon another gives liberty to the fibres,

which

which are as fine as a hair and eaſily obſtructed, to run abundantly and freely, producing knots ſpreading over the whole of the ſoil. After the potatoes have been ſet, begin to harrow; and when they begin to appear through the ſeams, you muſt harrow them again with the utmoſt poſſible care. Your own judgement muſt be the guide as to the ſort of harrow you make uſe of, and as to the time of doing it. It is next to impoſſible to harrow them too well. I have ſeen an extraordinary crop on ſward without harrowing at all: but it certainly is the beſt and ſureſt way not to omit it.

The above is a very cheap method of raiſing potatoes, and perhaps the moſt profitable of all others upon ſward-land; for by the very ſmothering crop, and the getting up of the potatoes at the latter end of the year, the ſoil is finely broken and reduced nearly to a pulverized ſtate, cheaper and ſooner than by any other means; and conſequently this is the readieſt and beſt mode of rendering it fit to receive corn.

If the land is covered with moſs, or with rough

rough graſs, ruſhes or haſſocks, the method here preſcribed will be found to anſwer, though not ſo well as paring and burning. The potatoes being ploughed up, and ſcratched out of the ground by women and children; the roots become ſo much looſened that it is eaſy to harrow them out, and they may be quickly gathered up.

Where the land is poor, if manure can be ſpared, it is proper to put it in with this crop, as the potatoes will thence doubtleſs grow much larger, and in greater abundance. And in the wheat crop the benefit will viſibly appear again; therefore the farmer may be aſſured, the advantage of manure to this crop will be as great as to any one without exception.

The mode of ſetting potatoes on fallow land, is to clean the ground from all kinds of refuſe ſtuff whatever, and then manure it with eighteen loads of manure per acre, if you have it. Spread it all over the land; plough, and make the furrows about ſixteen inches wide; and in each furrow plant

the potatoes from about ſix to nine inches aſunder.

Twelve ſacks will ſet an acre in my way: eight ſacks is the uſual quantity. I cut the potatoes, and leave two eyes in every *ſet*, if I can. In this way I have raiſed 180 ſacks, or 2160 pecks per acre; in drills, never more than 100 ſacks per acre. But then, when I followed the latter method, I uſed only twelve loads of manure per acre. One man and two horſes, with the aſſiſtance of a man and ſix children, will plant ſix roods per day. The man muſt look after the children, leſt they ſhould ſet them over thin and improperly. There muſt be four women to rake the manure into the furrow; and the man ſhould watch them likewiſe that they do it well. The potatoe muſt be laid upon the manure. This laſt is a moſt material and beneficial part of the proceſs; by attending to it, the produce will be much greater than if you followed the oppoſite method.

If you have not ſufficient manure to cover the

the land, it is better to ſet the potatoes in drills, as they will make but poor progreſs upon moſt ſorts of ſoil without manure; except upon remarkably rich ground, or on ſward, and ſward-land the next year after it has been broken up.

This is a crop I raiſe much cheaper, after ſet, than any fallow crop. I never hoe potatoes planted in my way. I let the land remain as left by the plough, until the weeds vegetate, which will be in ten days or a fortnight. I then harrow it over once or twice, ſo as to deſtroy the weeds. This harrowing will cauſe more to ſpring up; and theſe muſt, as ſoon as they appear, be in like manner deſtroyed. Continue this proceſs till the potatoes are up, and, after they are up, until they are from three to four inches high. The harrowing may injure here and there a plant; but, as they are ſet ſo thick, it will do no material injury: on the contrary it pulverizes the ſoil, and leaves the potatoes every opportunity to grow and ſpread; ſo that in a ſhort time their tops cover the land, and prevent any more

weeds from growing that ſeaſon. I have made land cleaner by this proceſs than by any other I ever yet tried. Seldom a weed makes its appearance, and the few that do are eaſily deſtroyed; and when the potatoes are ploughed up, the women and children who gather them ſo ſeparate the roots of every kind of weeds, that, by harrowing, they are very eaſily collected and carried off.

To get your potatoes out of the ground, you muſt firſt pull up all the tops and carry them off, and collect the potatoes that are pulled up along with them: then take a plough without a coulter, and plough the land deep enough to raiſe all the potatoes. You muſt have people ſufficient to gather up every furrow, to keep the man and horſes at work. The number of hands depends upon your crop. That done, you muſt with a pair of harrows with long teeth harrow the land well, to raiſe the potatoes miſſed in gathering. When you ſow your wheat, you muſt harrow again: there will be potatoes left worth gathering.

Potatoes

Potatoes for planting ought to be of a large ſize, as their eyes are ſtronger, and will produce a ſtronger plant, and bring a much larger produce; ſo much as to make the difference of thirty ſacks per acre betwixt large and ſmall potatoes for ſets.

It may be neceſſary to add, that all the ſpecies of potatoes may be managed according to the above methods, on all kinds of ſoil.

SECTION XVI.

Explanation why Wheat proſpers better after Potatoes than any other Crop.

AS the land is denſely covered and ſhaded by the potatoes all the hot dry ſeaſon, and when they are gathered by hand in autumn is harrowed and much trodden, it becomes to a great degree pulverized; but yet preſerves a beneficial moiſture. At the ſame time the manure originally laid in for the potatoes intimately mingles with the ſoil, qualifies it to receive the grain, and in

the quickeſt and moſt perfect manner promotes vegetation. If the manure were put into the ground at the ſeaſon of ſowing wheat, it would lie in lumps, and act more partially; would add to the ſtraw, but little to the grain.

SECTION XVII.

Different Kinds of Potatoes; Method of preſerving them; their Uſe in feeding Cattle, Horſes, Pigs, Sheep, &c. Beſt Method of treating Stock ſo kept, by giving the Animals different Food at the ſame Time.

THE ſorts of potatoe moſt productive to the planter, are, the ox-noble, the manly, the champion, and the cluſter-potatoe.

The red-noſe kidney requires a good ſoil; but is apt to curl at top, ſo as to make it a precarious crop, unleſs the ſort is frequently changed.

There are many ſorts of potatoes beſides thoſe which I have enumerated; but amongſt the ſpecies into which this root is ſubdivided,

ed, none, in my opinion, is ſo productive as the ox-noble, nor any ſo good for the table as the kidney. I ſpeak of the ſorts now in uſe: but it is highly probable that by experiments in raiſing from ſeed, we may at ſome future time obtain potatoes ſuperior to any at preſent known.

The beſt method of preſerving potatoes is to make them into what is termed a *pie*. To make the pie, chooſe a dry piece of ground, dig it about eight inches deep, and lay the ſods or mould ſo taken out bank-wiſe on each ſide the intended pie; which will prevent the potatoes from running about. Let the pie be from ſix to nine feet wide at the baſe, and the ſides fronting the eaſt and weſt; one end only being expoſed to the north. Raiſe it as high as you pleaſe, diminiſhing it to a ſharp ridge, like the roof of a houſe or barn. If it be brought to a ſingle row at the top, the pie will be the better for it. You muſt then cover the heap, firſt with ſtraw, and then with mould regularly a foot thick: but if you add a greater thickneſs, you will better inſure the

ſafety of your pie from intenſe froſts, which, if ſuffered to penetrate, would ſpoil the whole. After incruſting your pie with a ſufficient covering of mould, it will be moſt adviſable, as it is abſolutely neceſſary to keep the contents dry, to thatch it in the ſame manner as a corn-ſtack. This will cauſe but little trouble, and effectually exclude rain and froſt. Some, it is true, do not thatch them, and they may anſwer without: but it is ſafeſt not to omit that precaution; and I never think the trifling expence thrown away.

To waſh potatoes, carrots, &c.—Take a veſſel made in the form of a barrel-churn. The ſides muſt be compoſed of pantile-laths, or ſomething like them, nailed to the two ends, at ſuch a diſtance from each other as to prevent the carrots or potatoes from falling out, and to ſuffer the water to paſs freely through. A door muſt be left on one ſide, to put the carrots in and let them out at.

The veſſel is hung over a ſquare tub of water, ſo that about one half of it, and of the

the carrots, is immerſed in the water. You muſt turn it quickly round; and by theſe means you will ſoon waſh great quantities of potatoes, carrots, turnips, &c. Fix the veſſel over the tub in ſuch a manner that when you have ſufficiently waſhed your potatoes, you may lift it from the part it turns in, to a higher one near to one ſide of the tub. Then open the door of the veſſel, turn it round, and deliver the potatoes into a wheel-barrow.

Potatoes ſhould not be given to horſes in large quantities: I do not approve of working horſes being fed with them.

Young horſes may thrive very well on potatoes: but it will be adviſable to give them either ſome cut ſtraw or other dry food at the time, as they are too juicy and cold of themſelves, although horſes are very fond of them. Many people boil or ſteam potatoes for horſes, cattle, &c. but I do not approve of that practice, as they ſtick in the teeth of the animal, and are diſagreeable. I think it would be better if they were only juſt warmed through. If cattle be fed on

potatoes, chaff or chopped ſtraw ſhould be mixed with them, as they are liable to choak with eating potatoes alone. There have been numberleſs accidents of that kind: therefore precaution is neceſſary.

Giving too large a quantity at one time may prove of great detriment: this caution muſt be attended to, not only in reſpect to potatoes, but many ſorts of green food, ſuch as the different kinds of clover, ſaintfoin, lucerne, &c. &c. It is, indeed, not ſurpriſing that animals ſhould over-gorge themſelves when the food is green and luſcious to their taſte: but I had once a fine young horſe, who, by ſlipping his halter in the ſtable, got to the corn-bin, and ſo immoderately ſtuffed himſelf with oats, that he was unable to digeſt them, and died within leſs than twenty-four hours. Dry food given at intervals, whilſt they feed occaſionally upon green, will be found the beſt method of treating theſe kinds of animals; always taking care to be profuſe in neither ſort.

Sheep are very fond of potatoes; yet I never knew them over-feed upon them; but

but doubtleſs they may, as they frequently do upon turnips.

Cows fed with potatoes produce much better milk and butter, than when they eat cabbage or turnips.

SECTION XVIII.

Method of Harveſting Grain of all Kinds; with Proofs from actual Experiments.

THE reaping corn from ten tofourteen days earlier than my neighbours, is an advantage I have lately attended to. As corn begins to decay firſt at the root, all the nouriſhment it can afterwards receive while it ſtands uncut muſt be derived from the ſtraw. The dews may feed the grain at one time; but, when nearly ripe, and the root gone, the ſun and wind have ſo much power as to ripen it too quickly, or to ſcorch it up before its natural period of maturity. How often do the *old* farmers complain, that the ſeaſon of harveſt is ſo dry that the corn will all be ſmall! There would be little cauſe for this

this complaint, if they cut the corn earlier, and put the ſheaves into ſtooks in the field, which would ſecure it from the intenſe heat of the ſun, and from thoſe violent winds that ſo frequently occaſion great loſſes by ſhaking the grain out of the ear before reaped.

Once, by chance riding on the road about harveſt-time, I ſaw a field of wheat that had taken the mildew. This is known by the ſtraw being of a remarkably deep green, and, inſtead of dying, appearing to revive and acquire a greater verdure; which plainly indicates that the nutritive ſap ſtagnates, and that the grain receives from it no further nouriſhment. Nor does it, after ſuch appearance comes on, ever receive any, or grow larger. The ſtraw becomes ſpotted and black. The ſooner then it is cut, the better. I took twelve ears of the wheat, which, as likewiſe the ſtraw, were green as graſs, and mildewed. A great deal of rain had fallen the fore part of the day; but the wheat-ears were pretty dry. I tied them in a bunch, intending to hang them up in

ſome

ſome dry place to ripen; but on my return home forgot, and thought no more about them. My great-coat, being uſed only when there was reaſon to expect rain, was hung up in a hall; and ſeveral weeks afterwards, on putting my hand into one of the pockets, I found the ears of wheat, which immediately brought the circumſtance to my recollection. The ſtraw ſtill remained green. I rubbed out the grain; and, to my aſtoniſhment, never ſaw better. It was fine in colour, and well filled; but what remained in the field I took theſe ears from, was very ſmall, and of little value.

From this it would appear, that were wheat cut on the appearance of the mildew, and ſet in the field in ſmall ſtacks of about a cart-load each, ſo as neither to heat nor mould, it might render it much better than is done by the method now practiſed. Indeed the mildew in wheat is like the mildew on all other things. It is cauſed by damp in the ſoil. Very warm dry ſituations ſeldom have any mildewed wheat: as in a warm dry room your paper or linen is not

mildewed;

mildewed; conſequently, after your wheat is perceived to be getting into that ſtate, the ſooner it can be preſerved from it the better.

I had taken at the ſame time twelve ears of wheat from an adjoining field riper, which I put in the other pocket of my great-coat. Theſe laſt, though at the time of gathering they appeared ſo much ſuperior to thoſe which had taken the mildew, did not turn out nearly ſo good as the others. The reaſon appeared plain to me: the ripe wheat had ſtood too long, and the wind and ſun had ſhrivelled it up, and cauſed it to be ſmall.

From the above circumſtances I have ever ſince been partial to cutting wheat when the ſtraw appears of a reddiſh caſt, or ſome of it green, and the joints are full of ſap: and it always has fulfilled my expectations; for the ſtraw, if intended for chaff, will be better, the flour much fairer and heavier; and if intended for fine flour, it will grind into broad bran much better than that harveſted according to the old method. I do not however think that wheat which

has

has not taken the mildew ought to be cut so green.

Rye ſown along with wheat is a great preventative of the mildew; for rye is of a much drier nature, and moſt certainly prevents ſo much damp riſing to the ſtraw of the wheat. It is evident the damp riſes upwards; for if you build a houſe upon a wet or damp foundation, all the ſun and air in the univerſe will not ſufficiently make it comfortably dry and warm. You will find ſwamps on a field more ſubject to mildew than the more elevated parts. I have ſown rye mixed with wheat upon one piece of a field, and on the next wheat only; and the wheat amongſt the rye was ſcarcely damaged, and the other in a very bad condition from the mildew. As the damp from the earth is the principal cauſe of this malady in corn, the beſt remedy is to drain the land, and to lay on it manure of the drieſt nature, ſuch as bones, aſhes, &c.

There are other proofs of the damp from the earth cauſing the mildew; ſuch as that other white corn is not ſo much, or ſeldom

at all, attacked by it. Wheat being ſown in autumn, and lying ſo long on the land, the ſoil has not ſo good an opportunity to get dried after the winter, by being expoſed to the ſun and air. It may likewiſe be obſerved, that, in years when the ſeaſon has cauſed the leaf to be more abundant, and to ſmother the land the moſt, the mildew is moſt prevalent. Late crops are more given to this malady; and the cauſe is the ſoil's getting damper. I do not recollect to have ſeen ſpring wheat take the mildew; owing, I ſuppoſe, to its lying a leſs time on the ground.

Oats for meal, if early reaped, are much finer in colour; the ſtraw is better; and there is leſs loſs in the field.

Barley, by being cut ſoon enough, becomes much better for malting; even though cut ſo early that ſome part of it may not be ripe. Were you to let it ſtand until it were all ripe, it would ſtill differ in reſpect to the dying or ripening of part; conſequently, when wetted to undergo the neceſſary proceſs for malting, as it died at

different

different times, ſo will it have different times of reſurrection or ſprouting. Killing it all at one time by art, may enable the maltſter by art again to revive it, perhaps on the ſame day—a deſirable acquiſition in making malt to perfection; for if one grain begins to vegetate before another, part will be ready for the kiln before the reſt; and when the maltſter hopes to have the whole in a proper ſtate for drying, thoſe grains which had firſt vegetated would be acre-ſpired, and the ſaccharine quality be reduced at leaſt one fifth—a loſs which would be heavily felt by the brewer.

In peas—a great advantage ariſes from cutting early. The ſtraw, being full of leaf, makes excellent fodder; and, if there be wet weather, it does not occaſion the pods to open ſo ſoon. I do not approve of ſheaf-ing peas, or tying them up; a mode chiefly made uſe of in Scotland. By drilling with manure, the ſtraw will be very long, and of courſe require a different method of reaping. My peas were from ten to twelve feet long laſt year, podded from top to bottom, and

yielded forty buſhels per acre: a very great produce, as they were of the Haſtings kind, which are very ſmall. They were reaped with ſickles, ripping them up for a few feet, then pulling them from the ſtanding ones, laying the green end down, and the bottom upwards, and lapping the pods as much inwards as poſſible. By this method, the green part dried gradually: and pigeons, which frequently deſtroy much of this crop if they can get to the pods, were prevented from doing much damage.

It is beſt to mow barley, and let it lie in the ſwath for ſome days before you ſheaf it; as every poſſible precaution ſhould be uſed to prevent mow-heating.

Oats are beſt mown, and bound in ſheaves after the ſcythe, and left upon the ground, not ſet up in ſtooks, as commonly practiſed. But the people who bind them muſt give them a turn over; as the ſide they tie them on would readily receive the wet, but on the other ſide it cannot get in. By laying that ſide upwards, no rain will injure them for a long time; and they will *harveſt* much

quicker than in the ſtook; as the wind will have a free paſſage through the bottom, which requires the moſt air: whereas, if ſet in the ſtook, it would be a long while before they were fit to carry; and if left in the ſwath, ſhould the weather prove wet, great part would be loſt by turning over.

Beans are generally mown; but I approve of pulling them up: as the roots are very injurious to a wheat-crop, ſo much ſo as to prevent wheat being ſown; on account of ſnails crawling into the land and deſtroying the wheat. The expence is little different. They ſhould be tied up in ſheaves with wheat-ſtraw. If they ſtand till the leaf decay, tie them looſely in ſmall bunches, and ſet them up in ſtooks (four ſheafs to the ſtook) in the field, where they will ſoon be fit for carrying home; for, the leaf being gone, the wet will not remain upon them, and the bean will retain its proper colour, which otherwiſe would become black. Let them be ſtacked upon a belfry or tuffel, and they will receive for a long time no injury, as the air freely penetrates.

SECTION XIX.

Method of preſerving Crops, after reaped, to the greateſt Advantage, when Barns are not large enough for ſuch Crops.

TO preſerve corn expeditiouſly and ſafely, muſt no doubt be deſirable. On a fine day, when corn is ready to be carried, it is an excellent method to ſtack it in the field where it grew; for by ſo doing you will probably ſecure as much in *one* day, as you would have been able to carry home in *four*; or, if the diſtance be conſiderable, perhaps in a week. And if rain ſhould come the next day, or ſoon after, and continue, this manner of proceeding may be of very great convenience and advantage; it may make in the corn the difference of *good*, and of *good for nothing*; but to a certainty that of *good* and *indifferent*.

It may not perhaps be unneceſſary to ſay how a ſtack ſhould be conſtructed, ſo as to be liable to the leaſt inconvenience. Begin to make the middle of the ſtack firſt, ſo that,

when

when it is taken in, the middle muſt be fulleſt: the outſide ſheaves will then act as thatch; and even if the ſtack were not thatched, no common rain of ſhort duration could injure one ſo made. But ſuppoſing it tolerably, or what the thatcher would call *well* thatched; it is poſſible rain may penetrate; but if it did, the corn would receive little injury, as the moiſture, from the conſtruction here laid down, would entirely ooze out: nor can rats, mice, or many other vermin which frequently cauſe havock amongſt corn, do ſo much damage in a ſtack ſo made.

Another advantage attending the making of a ſtack in an open field is, that the grain by the free circulation of air becomes ſoon dry, and preſerves the original ſweetneſs; whereas in confined places, ſuch as *ſtack-garths*, where great numbers of ſtacks ſtand cloſe together, or in *barns*, the air frequently ſtagnates, and the corn becomes muſty, or acquires a putrid ſmell.

The above method will be found to anſwer for corn in general.

SECTION XX.

The Author's Opinion on Tranſplanting Wheat: Reaſons why it muſt prove beneficial.

TRANSPLANTING of wheat, ſo as to ſet a whole field, is not likely to become a general practice: but circumſtances frequently occur where it may be attended with ſome benefit. For example, when ſome misfortune happens to a part of the field, a diligent obſerver will generally diſcover ſome ſpots to have miſſed, and to be thinner than the others. Whatever may have been the cauſe of the ground's not being regularly covered, whether the wheat's having been deſtroyed by water in the winter, or from any other accident; the farmer may always find ſome part of the ſame field from whence he may draw plants without doing any harm; and, if he be a neat huſbandman, he may fill up the vacancies by tranſplanting from thoſe ſpots where the plants are ſo thick as to injure each other.

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SECTION XXI.

Advantage of Dibbling Wheat.

THE great advantage of dibbling wheat is in the treading of the light land by people paſſing and repaſſing; for the regularity of ſowing is not ſo great, children often dropping in twenty grains inſtead of four. I much approve of the practice on all flag land or ſwards ploughed up for clover, hay, &c.; for the men or women ſtepping backward upon every furrow to make the holes, and the children to depoſit the wheat, tread the land down ſo that it has an immediate connection with the ramel. The grain is depoſited where it ought to be, in the beſt of the ſurface ſoil, about three inches aſunder every way, and about one inch and half deep in each furrow; ſo that it juſt reaches the beſt part of the ſurface ſoil to derive its ſupport from. Should your ploughman *turn-over* twelve inches,

four rows of wheat ought to be ſet on each furrow: and, to do this, the iron or dibble might have two prongs. It is not indeed uſual to plough the furrow twelve inches broad: but, for dibbling, I do not think the furrow can be too broad, provided the plough clears her way and lays it flat. The ſeed in the broad-caſt falls where it ought not to do, betwixt the furrow, where the ſoil being light continually keeps dropping from the root, ſo that it is left without proper nouriſhment, by which means the growth of the plant is retarded, and the produce diminiſhed. On the contrary, when dibbled, the root ſtands upon the firm earth, and the worms or grubs, &c. are in ſome meaſure deprived of the immediate opportunity of feeding on it.

Eight pecks of ſeed might, if properly depoſited, be ſufficient for dibbling one acre. Ten pecks is what I ſhould uſe. I am no friend to the ſaving of ſeed; as on every experiment I have tried, the loſs of produce in both ſtraw and corn greatly ſurpaſſed the value of the ſeed ſaved. Some uſe in

dibbling

dibbling only ſix pecks per acre. But this certainly is too ſmall a quantity; for many of the grains fall by the ſides of the holes, and grow not up to perfection. However, among dibbled wheat you will find the feweſt ſmall and light ears.

The expence of dibbling is with ſome an objection. Individually it coſts money; but publicly it coſts nothing, becauſe it is done chiefly by women and children, who muſt be maintained from the produce of the earth; and is it not better that the women and children ſhould work for their meat and clothing, than to have it found them for nothing? And in the proper ſeaſon for dibbling wheat there is no other ſort of work for them. The expence is from 9*s.* to 10*s.* 6*d.* per acre.

Some may ſay, "Clay ſoils it will injure." But I ſay, no. For, during the winter the froſts lightens the ſoil; and on ſwards or clover-ley there is a mellowneſs which prevents them from being of too binding a nature. It might be an improvement in the preſent practice, with the ſkim-plough thinly

thinly to pare the ſod or ſtubble, and lay them in the bottom of the furrow; as that would prevent all kinds of graſs or weeds from making their appearance: and then the broader the furrow the better.

Dibbling of ſpring-corn, where land is liable to ſet or bake, may be attended with ſome of theſe inconveniences. Therefore, judgment is required in the ſpring to diſtinguiſh the ſort of land proper for dibbling.

Oats, peas, and beans ought all to be dibbled; as harrowing them brings them to the top as it does ſtones: and it is impoſſible to cover them properly, but by dibbling or drilling.

The neceſſary operations for dibbling are as follow: Plough the land in broad furrows as deep as the ſoil will admit, afterwards roll it. Then a man or woman takes a couple of irons, and going backwards makes two holes at one time, one with each hand. The dibbling-irons are fixed to handles of a proper length: and the point muſt be ſo contrived as to make the holes one inch and a half wide, and one

inch and a half deep: then put in the ſeed about four grains in each hole: then buſh-harrow two or three times lengthwiſe, and then acroſs the lands. If a flock of ſheep were driven acroſs the field, it would be of great uſe, as the feet of the ſheep would tread the earth into the holes where the ſeed is depoſited, and prevent the water from lodging in them. After the ſheep are removed from the field; buſh-harrow again.

SECTION XXII.

Uſe and Advantage of Drilling Wheat.

DRILLING of wheat is a great ſaving of grain. No one can doubt of this aſſertion being a fact; as by it the ſeed may be put into the ground in a regular manner, either as to depth or diſtance. It may likewiſe be made uſe of for all other kinds of grain: and I think the ſaving of ſeed would be at leaſt one third. As to ſcarifying afterwards, that ſeems of little uſe except in land

land that is apt to *bake* and crack.—See Section VII.

There cannot be a doubt but all corn ought to be depoſited a certain depth in the ground, and at certain diſtances: therefore, to do that, the land muſt be firſt pulverized and made ready to receive its crop; and then the corn put in it. It little matters by what mode this is done; the more ſimple the better. The drill-roller does its work with as much diſpatch as any thing I have ſeen, and fully as well. It may be neceſſary to deſcribe it (ſimple as it is) to thoſe who have not ſeen it. It is a roller, of any given length, made of wood, with nicks cut in it about ſix inches aſunder, as deep as your timber will properly admit. The edges muſt be ſhod with iron rather ſharp, that when it turns round it may make ſmall furrows or drills proper for your grain to fall in. You muſt ſow it broad-caſt, and buſh-harrow the land afterwards. As to depth, you muſt add more weight to your rollers, if you ſee it not penetrate far enough. It is a good way to fix

at

at the back-part of the roller ſomething to clean out the nicks, or they will clog up and not make drills ſufficiently deep to receive the grain. I have ſeen ſome very regular good crops, that had been ſown in this way.

SECTION XXIII.

What Horſes moſt proper for Huſbandry; Inſtructions for Breeding them; of their Shape, Action, &c.

THE horſe uſed in huſbandry ought to be larger, but in other reſpects like the road-horſe: and, inſtead of walking two or three miles an hour, he ought to walk four or five. In that caſe, he would be able both to plough more land in a given time, and would work in the cart or waggon with more diſpatch, when wanted. In harveſt time a nimble and ſtrong horſe is valuable. In drawing manure into the field, or corn to market, the farmer will alſo find his account in ſtrength and activity: for, as

the draught in all theſe caſes is light one way, ſuch horſes would do their buſineſs with ſpeed. The ſmall farmer need not with this kind of horſe keep an idle one; he might carry his maſter to market, and plough the remainder of the week. This is the ſort of horſe proper for a gentleman's heavy coach: therefore, if the farmer ſhould determine to breed, and take a little pains to rear horſes of bone and action, it would not only prove advantageous to himſelf, but uſeful to the public.

Theſe horſes ſhould be bred to be from fifteen to ſixteen hands high, ſhould walk light five miles an hour, trot twelve; and if one now and then turned out rather low, he would notwithſtanding fetch a good deal of money for carrying ſome heavy gentleman.

Horſes of this deſcription are hardy, and require leſs food to ſupport them than the long-waiſted waſhy things of faſhion, which ſome half connoiſſeurs in horſe-fleſh are ſo fond of.

The general opinion is, that, if a horſe

is

is put to draw, it will make him ſtumble. If he is over-weighted and worn down, this poſſibly may be true: but keep a horſe above his work, and he will be no worſe for the ſaddle. I have a proof of this in a mare I now ride. She is of the breed I recommend. I bought her, when ſhe was four years old, out of a man's team, which he worked for hire. He had drawn her two years very hard, yet ſhe has carried me (though I ride nineteen ſtone) nine years, and has never once been down with me, although I have ridden her over as dangerous roads as any in the kingdom—in Derbyſhire, Cheſhire, Lancaſhire, Weſtmoreland, &c. I do not now think her, as to ſafety, in any reſpect worſe than when I bought her: on the contrary, I really think her better. I gave eighteen pounds for her, which was thought too high a price by ſome who pretended to be judges: but I have many times ſince been bid fifty pounds for her, and once abſolutely ſold her for ſixty; but the gentleman to whom I ſold her, at my own earneſt requeſt let me have

her again for the ſame money. She will carry my weight ten miles an hour with eaſe. I have ridden her from Lincoln to Doncaſter, which is forty-two miles, within five hours. This mare was bred from one of the cart kind, and got by a blood-horſe. The ſervice ſhe has done makes me ſo ſtrenuouſly adviſe breeding this ſort of horſes, which will in all probability turn out ſo uſeful to the breeder and to the public.

SECTION XXIV.

Deſcription of a Road-Horſe; particular Action neceſſary for the Eaſe and Safety of the Rider.

THE road-horſe ſhould have a ſmall head, a quick eye, with a riſing forehand or neck; his ſhoulder to be caſt into his back, not very fine in the chine. His back muſt be ſtraight, not over ſhort. Let him be high in his ribs, and ſtraight in his hind quarters, his hucks lying cloſe or round

with

with his rib, and his tail ſtanding ſtraight with his quarter; thick in his thigh, and broad in his breaſt; ſhort in his legs, with his fetlock very ſhort; a good round hoof not over ſteep. He ſhould rather ſtand a little out with his fore toes, and his hind feet the ſame; for by that poſition he is both ſtronger and ſafer. He cannot move with one leg too near the other, provided he does not cut. For, when a horſe moves, he muſt have two legs off the ground: therefore by keeping his legs near each other he is ſtronger. By one leg on the ground being perpendicular, and his toes ſtanding a little out, he is much ſafer: if he makes a trip, he does not ſo ſoon loſe his balance, or get over his knee. The ſhorter he ſteps the better, if he is but quick (for light moving is equal to ſtrength); and by keeping his legs under him, he does not tire like a horſe who overſteps and fatigues himſelf. Nor does he beat the ground ſo hard; ſo that his feet and legs laſt much longer.

SECTION XXV.

Beſt Method of Shoeing the Road-Horſe, to empower him to travel with Eaſe and Comfort to himſelf.

THE foot of a horſe ſhould be kept in the ſame form it had when he was foaled; the toe ſhort, and the heel up. The ſhoe ſhould not be longer than the hoof of the toe, and the leaſt that is poſſible in the heels. For, if you ſhoe him much longer at the heel than the corner, that part of the ſhoe acts like a lever behind his heel, as if you meant to lame him by prizing it with a crow, or bar of iron. Indeed the ſhoe of a horſe ought to cover little or no more ground than his foot would if not ſhod; for if it does, it will only ſerve to break his hoof, draw out the nails and looſen the ſhoe; as, if he treads the leaſt uneven, which is frequently the caſe, the ſuperfluous iron acts in the way juſt mentioned.

If

If the horſe's hoof is naturally hollow, the ſhoe ſhould be thickeſt near the edge or nail-holes.

If he have a flat, or what is termed an *oyſter* foot, the ſhoe on the contrary ought to be diſhed, as in that ſort of foot the quick lies near, and of courſe he muſt be tender. Bar ſhoes are proper for ſuch feet.

SECTION XXVI.

Deſcription of the Dray-Horſe, and the Stage-Waggon-Horſe to travel.

DRAYS require the ſloweſt movement in a horſe. The burthens are generally exceſſively heavy; in London ſtreets particularly, where no ſwiftneſs, but great power is required to move the immenſe weights drays are often loaded with. Horſes for this purpoſe, therefore, ſhould be very broad-breaſted, and thick in the ſhoulders, which ſhould not lie backward. Nor ſhould the fore-hand be up as recommended in the road-horſe; for, by holding up their heads,

they would be choaked by the collar, as they would, if ſo formed, draw too much by the throat, and, their wind being thus ſtopped, would be in danger of falling down. The neck of a dray-horſe is not the better for being long. If his head be ſmall, he is likely to be of better thrift; but then on the other hand, a ſmall head is ſometimes a ſign of a lively ſpirit, which makes a horſe not ſteady in drawing; and it is a great fault in a dray-horſe to be quick or haſty in temper. Like all horſes, he ſhould be choſen with ſhort legs, and good ſtrong hoofs. He ought to be thick in his thighs, and large in bone: but I can ſee no neceſſity for that great quantity of hair ſo frequently met with upon the legs of theſe animals. I am of opinion, that, in reſpect to uſe, he would be better without that ſuperfluous ornament: but, perhaps, the dealer would not give ſo good a price for him without the hair, as with: therefore, as breeders, like other men, muſt look to their profit, they will no doubt continue to rear ſuch horſes as will fetch moſt at market, and think

think more of ſhow than real uſe; for a redundancy of hair is not a ſure indication of ſtrength.

Moſt of the obſervations laid down reſpecting the dray-horſe are equally applicable to the ſtage-waggon horſe. His ſhape and make, however, muſt not be exactly the ſame; for, as the waggon-horſe is required to travel, he muſt partake of the nature both of the true dray-horſe, which originally was a native of Flanders, and of the true Engliſh coach-horſe, a breed unknown anywhere but in this iſland. A quicker movement is required for a ſtage-waggon than for a dray, and ſomething more of ſpirit in the horſe. A true dray-horſe could not laſt long in a waggon; as he is rather too heavy.

SECTION XXVII.

Opinion on Draught Oxen; the Sort for ſuch Uſe.

THE Devon ox is a pattern, as to make and ſhape, for all draught-oxen. The De-

vonſhire ox is better formed to move than any ſort I have ſeen, excepting the Scotch ox, called the Fifeſhire ox, which is made better in reſpect to walking than any other; for he has the beſt feet I ever met with. The Welſh ox is in many reſpects ſimilar to the Scotch.

The ox moſtly uſed by our farmers is of the Tees-water or Durham, and the Holderneſs ſpecies.

The Devonſhire oxen are as good, if not better feeders than any ſort I have yet ſeen: they attain very heavy weights, and cut up as fine as any, without exception.

The Fifeſhire fattens not ſo quickly as the Devonſhire ox; but, when fat, is equally delicious.

The Tees-water ox is proper for heavy draughts, is much larger in ſize, and will pay better for his keep. He may draw from the age of *two* to that of *eight*; if fattened when two years old, he may weigh about forty ſtone; if made fat at the age of eight, he will weigh ninety ſtone or more. Suppoſing beef at ſeven ſhillings per ſtone,

the difference between ſlaughtering him at the age of two, and at that of eight years, will be as 14*l.* to 31*l.* 10*s.* that is, 17*l.* 10*s.* for the keep of the ox for ſix years, which is 2*l.* 18*s.* and a fraction per year.

Now it is well known the horſe frequently decreaſes as much in value. But is not that the farmer's fault? For horſes may be made to pay for their meat as well as oxen. A mare, for example, may breed a foal, and do a great deal of work; in the winter at this rate ſhe may be reckoned at about 6*l.* per year. In ſummer an ox is kept at a cheap rate, and may ſupply her place. A young horſe, bought in with judgment, and worked eaſily, will pay two guineas per year, on the loweſt eſtimate. A horſe will not thrive upon ſuch food as will keep an ox; but if you work an ox with a horſe ſide by ſide, the ox muſt be fed with corn in the winter. After all, the advantage is clearly on the ſide of the ox; unleſs you ſell the horſe when he comes juſt into his prime. For, if you wear the horſe out, his fleſh is fit only for the dogs,

and the carcaſe with the ſkin will not fetch more than a dozen or fifteen ſhillings, whilſt an ox will fetch from 20*l.* to 30*l.* or perhaps much more. I think that farmer the beſt manager who keeps both horſes and oxen for draught; for he will thus be enabled to ſend the moſt commodities to market from any given quantity of acres of land.

There is a ſort of oxen which I have not yet deſcribed, which are the long-horned or Craven kind: theſe oxen are bad workers, but in general pay beſt when killed very young—at the age of three years, for example. Therefore they ſeldom draw or plough much. The Iriſh oxen, with reſpect to working, are very ſimilar to the Craven kind.

It has been aſſerted that an ox will plough as much land in any given time as a horſe: but that is impoſſible, if the horſe be of the right ſort for the plough. The horſe would certainly walk over three miles while the ox walks over two, therefore would plough three acres of land whilſt the ox

ploughs

ploughs two acres. I believe, that at preſent the ox does as much work in any given time as the horſe; but that is either the fault of the maſter or the man; for the maſter muſt either have provided a horſe of very ſlow movement, or the man muſt be very idle. I will undertake to find a man and pair of horſes to plough three acres while another man and a pair of oxen ploughs two acres, for twelve months together. But then we muſt conſider the difference of expence in their feeding, and of the value of the carcaſe of the worn-out horſe and the worn-out ox, as has been remarked above. Both are very uſeful, and ought always to form part of the ſtock of a farm of conſiderable extent.

A man in a very ſmall farm, conſiſting of from eight to twenty acres, ſhould work his milch-cows, or ſuch as he may be rearing for that purpoſe. By tilling his ſmall quantity of land to advantage, he might keep eight or ten cows, and get fifteen acres of corn every year; which, at 10*l.* per acre, would make 150*l.* beſides the profit of the

cows,

cows, which might be managed in ſuch a way as to injure them very little, as there are ſo many to do ſo little work.

The ox, I will allow, is not the moſt pleaſant animal to do huſbandry buſineſs with: the farmer's ſervant will diſcover as much difference between the horſe and ox in this reſpect, as he would between the horſe and aſs, were he obliged occaſionally to uſe both for a journey: but the pleaſure of the ſervant in that caſe has been more conſidered than the profit of the farmer. The horſe paſſes quickly over the ground; and, in a bad ſeed-time, when land is liable to *ſet*, become hard, or over-wet, getting the ſeed in quickly in the proper ſeaſon is of infinite conſequence to a crop; and, oxen being ſlow, the farmer muſt either employ an extra number of them, or beſtow more time in ſowing his crop, or in doing any other kind of buſineſs.

SECTION

SECTION XXVIII.

Milch-Cows proper for the Dairy, and for Fattening.

THE cow which gives the moſt milk is not the cow which fattens the faſteſt. It is impoſſible ſhe can vie in fleſh with the cow which gives only a ſmall quantity, and whoſe food is principally applied to the fattening of her. The draining of nutritive juices by milking muſt, with very few exceptions, keep the milch-cow down: and the ſame obſervation will hold good reſpecting the quick-feeding or faſt-fattening cow, which will always be found to be ſcanty of milk.

The features of good milch-cows, and of thoſe for fattening, are nearly the ſame. A cow for milking ought to have a ſmall head, a thin hide, fine chaps, a ſmall tail, the thighs thin, and of ſmall bone. Her paps ſhould hang ſquare; the udder ſhould be round, and not fleſhy; her milk-vein very ſtrong. The vein called the milk-vein runs upwards from the udder towards the huck.

There

There are cows of a different deſcription, which yet are good milkers; but the above ſort will be found of moſt general uſe. Some very ill-ſhaped cows give a large quantity of milk; but, for the moſt part, they have a ſmall tail and thin chaps.

The cow with a diſpoſition to fatten faſt differs from the milch-cow by the milk-vein being much ſmaller, and the udder appearing leſs, and of courſe containing leſs milk; her hide, if thick and mellow, is a ſign of her thriving; and what is termed a thin or paper hide covers generally a poor animal and a bad thriver.

SECTION XXIX.

Method of Fattening Calves to the beſt Advantage.

TO make calves fat in the ſpeedieſt manner, take the milk from the cow and boil it, and let it ſtand to be cool enough for the calf to drink. By this method the fleſh will become white without bleeding; the

veal will be juicy, have a good flavour, and be much better for eating, than the calf whoſe juices had been ſo much exhauſted and dried by frequent bleedings, that the fleſh has no more nouriſhment in it than the pith of a willow-ſtick. It is very proper to give the calf in the middle of the day a ball or two mixed up with common gin, which not only will promote ſleep, but will prevent the milk from turning ſour on his ſtomach, and likewiſe keep his body regularly open. A ſmall glaſs of gin is ſufficient to wet flour enough for two balls; and no other ingredients are required. Theſe balls are not to be uſed before the calf is a month old. The calf cannot be kept in too cloſe a place: he ſhould be well bedded with clean ſtraw; and the place where he ſtands ſhould be made ſlanting, ſo that all wet immediately run off; for, if he lies wet, he lies cold; and great care ought to be taken that he lie dry and warm. I have fed a calf that at the age of thirteen weeks has produced, when ſlaughtered, 8*l.* 19*s.* 6*d.* This calf weighed ſeventy pounds per quarter.—See Annals of Agriculture, No. 155, p. 557.

SECTION XXX.

Uſe of Sheep in Improving Land: the great Profit ariſing therefrom.

SHEEP are the moſt profitable of animals; as they not only increaſe in fleſh much quicker than moſt others, but pay a yearly tribute to the owner by their fleeces. They ſupply us with a ſtaple commodity, which employs an infinite number of people at home, and produces a moſt beneficial trade abroad.

Where ſheep eat the herbage, they manure land very regularly, and cauſe the graſs to come finer after than when eaten by any other animal I know, except deer.

Sheep by nature are cleaners of land. To maintain themſelves, they will eat every kind of weed, except nettles and thiſtles, and conſequently eat to greater profit than any other animal. The loſs in ſheep is attended with leſs loſs of property than generally attends the loſs of other animals which are accounted as ſtock by the farmer: the

the ſkin at every age is of ſome value; and ſo is the fleſh in many inſtances, when you have a careful and attentive ſhepherd. They are very prolific, and begin breeding early. I have bought a drape-ewe in September, and by the September following with two lambs ſhe paid clear profit 3*l.* 16*s.* when ſold to the butcher. I bought her in at 1*l.* 4*s.* She ſold for 2*l.* 5*s.*; the fleece for 5*s.*; the two lambs for 1*l.* 5*s.* each; which together makes five pounds. Deducting then the original coſt of 1*l.* 4*s.* I have a clear balance of 3*l.* 16*s.* Two ſuch ewes would bring 7*l.* 12*s.* profit: one acre of good land would keep them, and ſufficient bite be left for a horſe or beaſt to defray all expences.

By expending 2*l.* 8*s.* in the purchaſe of two ſheep, a clear profit may be gained of 7*l.* 12*s.* I know of no other animal that will do as much upon one acre of land with ſo little riſque of capital; as, in caſe of accident, you in all probability have the chance of ſeveral lives, and the original coſt is but trifling.

SECTION

SECTION XXXI.

Deſcription of the beſt Sort of Sheep, with Inſtructions for Breeding them; the Sort of Wool required, and how to promote the Growth of it.

THE Diſhley ſheep are without diſpute the beſt. The breed is now ſo univerſally ſpread over this iſland, that it might be thought ſuperfluous to deſcribe them: but as this work may poſſibly be read in other countries beſides England, I think it neceſſary to give a ſketch of this very uſeful animal. A true Diſhley ſheep from the top of the back, that is, from head to tail, reſembles the back of a tortoiſe; the head is ſmall; the neck or crag particularly ſo, and ſo ſhort that, when the ſheep is hung up by the heels, you cannot ſee any neck; the fat and fleſh ſo completely covering it that the fore-quarter appears as if joined to the head. The breaſt is remarkably wide or broad; the carcaſe not very long; but

the

the rib ſtands up well (that is, high and round), ſo that by laying your hand upon him you will perceive an extraordinary breadth. He is much inclined to accumulate fleſh upon the back: the fat of many of them upon the ribs and ſides hangs in ſuch a manner as to cauſe what is called the fore-flank and the neck-vein to be larger than you can graſp with your hand; ſomething like a bullock's flank, but very frequently fuller, except it be a very fat bullock. I have ſeen mutton of this kind cut ſix inches deep on the rib. In his twiſt he will be ſo cloven between the legs as almoſt to touch his *camerils*. In ſhort, the offal (ſuch as the ſhanks, neck, and head) of this ſort of ſheep, which weighs from thirty to forty pounds per quarter, will weigh but few pounds! And what renders it ſtill more an object of profit is, that it not only eats leſs than any other kind, but from its propenſity to thrive becomes fat much ſooner.

Were theſe ſheep kept poor upon thin lands, on commons of a dry gravel or lime-

ſtone ſoil, until they were four or five years old (as ſome of the Downs and Scotch ſheep are), and then made fat, I have no doubt but the mutton would be full of gravy, and the beſt in the world; as they are remarkably juicy and fine-grained. Many gentlemen have obſerved to me that ſheep of this kind are liable to get over-fat; and that the flavour of the mutton is not ſo delicate as that of ſome other ſorts. My anſwer is, that ſheep of this kind are at preſent in the hands of the beſt feeders, as well as breeders; and as the price of the ram is very high, great care is in general taken of the offspring—ſuch care that they are frequently kept fat the whole time they live, ſometimes too much ſo; which cauſes their fleſh to become ſtrong: and this I believe to be the caſe in all animals when they attain a certain age. I had a ſtriking proof of this, in regard to the flavour of fleſh, in a very poor pig which my father bought of one of his labourers. The pig had been given very young to the man by my father, and was of the ſame litter with ſome we were

then

then fatting: they were all fed in the ſame ſtye, and with the ſame food: the *poor* pig fattened aſtoniſhingly faſt, and was afterwards found to be as ſuperior in flavour to the others, as Scarborough mutton is to the large Lincolnſhire or Tees-water ſheep.

It is ſo likewiſe with fowls, a proof of which I alſo had. When I lived at Aſgaſby, in the vicinity of the Eaſt and Weſt Fens, the general opinion of my neighbours was, that a fen-gooſe, from drinking the ſtagnant water in the pools, and living on graſs, would always be found rank, or at leaſt very ſtrong, food. I went with the tide of opinion, and for a long while fancied I had a particular averſion to fen-geeſe: but, the making of experiments might be termed my hobby-horſe: and, on ſeeing by accident thirty fen-geeſe compoſed of nothing but ſkin and bone (for they were deſtitute of fleſh and feathers), the ſituation of the half-ſtarved pig ruſhed ſo forcibly upon my memory, that I was induced to buy the whole flock. I put them in a fold amongſt ſome cattle, where

there was no water to ſwim in. What water they got came from a pump—a very pure ſpring. Their food was barley (for the cattle were fed on nothing but barley-ſtraw); nor could they get at any thing elſe. After the geeſe had remained about a month at this food, I had one killed and dreſſed—a better never was eaten, and not one of the thirty but was equal to the firſt. There is another prejudice, which ſuppoſes that pulling the feathers whilſt alive makes the gooſe rank: but thoſe I ſpeak of had been pulled thrice at leaſt.

It is the quality of the food that determines the taſte of the fleſh; this one more inſtance may elucidate. Whilſt in Lincolnſhire, a man one day at market ſold two of the fatteſt geeſe I had ever ſeen. My curioſity was ſtimulated: I was anxious and inquiſitive to know what means were uſed to give them ſo great a quantity of fleſh and fat. The vender aſſured me they had eaten nothing but graſs; I thought this muſt be a much cheaper method than the one we practiſed, which was to give them as many

oats

oats almoſt as they were worth when killed; and I hoped that from thenceforth I might eat my roaſt-geeſe, or my gooſe-pie, upon cheaper terms than formerly. I had then ſome at graſs, which, though not ſo fat as thoſe the man ſold, were yet fatter than any I had fed on corn: but when my gooſe came to be put to the fire, I ſoon reſolved upon returning to my old method of feeding with corn; for although this, in common with the reſt of my geeſe in the field, had as fine a ſtream of water as is in any part of England to ſwim in, no fox, or any other kind of vermin, if put down to roaſt, could ſtink worſe than my graſs-gooſe. She fed on a rich paſture, and ſandy ſoil.

It has been thought by ſome to be very indifferent what pigs feed upon, provided they eat and get fat.—A circumſtance that once happened to me may ſerve as a caution to the feeder of pigs, in reſpect to pigs nearly fit for ſlaughtering. I had upwards of forty pigs feeding. The gardener pulled up ſome onions, and threw the tops (conſiſting of a barrow-full) to the pigs. Two

days after, I had one of the pigs killed, and in the fry perceived a ſtrong taſte of onions: I had recourſe to the cook for an explanation; but ſhe was entirely ignorant of the cauſe. I then applied to the pig-feeder, who readily told me what the gardener had done. The pigs had been confined in a fold, and had no food but ſuch as grains and brewers' waſh. The remaining part of the pig killed I had ſalted and hung to dry: but it proved to be uneatable, and we threw it away. I mention theſe circumſtances, to warn the farmer how neceſſary it is to give ſweet food to ſuch animals as are intended for the table.

But to return to ſheep. In one reſpect they partake of the nature of *oxen*:—I mean that the ſmall breed is finer in fleſh than the large. A ſheep of the Welſh breed, which ſhall not weigh more than ſix pounds per quarter, will prove of ſuperior grain to a Tees-water of ſixty pounds per quarter. In like manner, a Scotch bullock of twenty ſtone will be finer fleſh than one of the Durham or Holderneſs breed of one hundred

dred and twenty ſtone: and this rule will hold good in moſt animals uſed by us as food.

Having ſaid ſo much on fleſh, we ſhall now ſpeak of the wool, which undoubtedly is fineſt on the ſmalleſt kind of ſheep. But the fineneſs of the wool is not the certain conſequence of a diminutive carcaſe: the food is the primary cauſe. I have witneſſed a ſheep from Spain put upon the rich land in Lincolnſhire near Boſton; and in two years this very ſheep, the fineſt to be procured in Spain, clipped a very unuſeful kind of fleece, with more hair than wool. The rich land here referred to is more adapted to the growth of the combing ſort of wool, which is the moſt valuable of all, as it yields by far the greateſt quantity. From four good wethers may be clipped two tods of wool, the wool being frequently fourteen inches long. Allowing, then, one acre of land to keep, during winter and ſummer, ſix ſheep, we have ſix ſtone of wool, which, at one guinea per tod, amounts to 3*l.* 2*s.* 6*d.* But two

acres of this land frequently feeds a beaſt likewiſe: therefore, if a beaſt pays ſeventy ſhillings by feeding for one ſummer on *two* acres, by allowing thirty-five ſhillings for one acre, you have an aggregate ſum of 7*l*. This kind of land is managed at very little expence: and the profits are great at preſent. Sheep on the land laſt-mentioned are better when of a larger ſize, than thoſe kept in places diſtant only a few miles from a good market. Sheep of a year old or under cannot bear the fatigue of driving from one to two hundred miles, like thoſe which by age have acquired their full vigour; and the expence of ſending a large or ſmall one to market is the ſame.

The large ſort of ſheep pay for their food by the great increaſe in bulk, and will live and thrive on lands improper for fattening cattle and other kinds of ſheep. Of ſuch land there are large quantities in the Lincolnſhire marſhes. And the wool, from ſituation and for profit, is there required to be of a ſort fit for combing, and ought to be as nearly as poſſible of one length and hair, of an open

mellow

mellow nature, about ten inches long, even at the top, ſo as to have little or no tag; as the tag is not only waſte, but expenſive in cutting off. The food of ſheep in theſe marſhes is ſurpriſingly apt to promote the growth of the above ſort of wool; and produces it faſter than any other kind of land in England.

When the large ſheep feed upon barren ſoils of a very cold nature, their wool is fettered together and grows into what are called *cots*, and decreaſes to half the value of what it would have been in a good rich paſture.

For poor ſoils, ſomething better than moors or mountains, the beſt ſort of ſheep is the Diſhley. On ſuch ſoil their wool will be ſhorter and weigh leſs; which is occaſioned by ſuffering hardſhips, and by the want of rich food. The paſture not being ſufficient to fatten them; they may be fed with turnips and ſeeds, which, when good, are excellent for ſheep, and cauſe them to produce more wool.

Having deſcribed the ſort of wool moſt

proper

proper for very good, and for indifferent land, I ſhall now ſhew what is moſt proper for mountains or heaths.

The ſort of wool on ſheep feeding in ſuch places ought to be very fine; the finer the better; the length from one to two inches. It muſt be very thick ſet: in fact, it cannot be too much ſo; for the coat preſerves the carcaſs on the bleak unſheltered mountain.

It may now be neceſſary to remark, that any ſort of wool may by attention and management be raiſed on the ſame ſort of carcaſs, and on almoſt all ſoils; but the nature of the ſoil will moſt aſſuredly in a great degree prevent the wool from attaining the higheſt perfection. Salt-water land, or land taken from the ſea, will produce more wool and of a much heavier nature, and whiter in colour, than any other land whatever.

According to the condition of the ſheep in reſpect to fleſh, land ſown with graſs-ſeeds, or ſuch as is liable to rot ſheep, generally produces white wool. In the latter inſtance,

inſtance, the whiteneſs of the wool may be attributed to the great loſs of blood the ſheep may ſuffer by flowks in the liver. At Claythorpe, during my four years' reſidence, I never ſaw taken out of a ſheep fed in that pariſh one liver free from flowks and eatable.

Sheep will fatten on many ſoils that yet are not congenial to the growth of wool; the wool will be dull, not white and oily, and will weigh light in reſpect to the bulk of it.

SECTION XXXII.

The great Uſe of breeding Sheep to ſuit different Soils; with Rules drawn from Experience how to breed the Sort required.

IN breeding ſheep to ſuit different ſoils there is another conſideration to be attended to by the farmer, which is that of ſtocking land with ſuch a ſort as will ſuit his ſituation in reſpect to diſtance from his market. The Diſhley ſheep ſuits almoſt all ſoils, and will

will proſper wherever there is any thing to eat. It has been generally ſaid, the Diſhley ſheep did not produce fat lamb, but I have proved the contrary. I had a lamb, got by a Diſhley ram out of a Northumberland ewe, that, when five months old, weighed twenty pounds per quarter, and altogether fetched forty ſhillings. This lamb was killed in the month of September.

Here perhaps I may be told that Mr. Bedel, of Foot's-cray in Kent, very frequently can ſell a lamb of leſs than one third the weight of the one I mention for 3*l.* 3*s.* But we are to conſider the different expence of paſture-lamb and houſe-lamb; and that he confines himſelf entirely to the breeding of the latter for the London epicures to furniſh their tables with at Chriſtmas.

To return to my lamb: Had he had from one to two hundred miles to travel, he would have loſt a great deal of weight and value. A two or three years old wether or ewe certainly would not diminiſh ſo much by the ſame journey: but if you can bring a lamb to fetch the value of a two or

three

three years old ſheep, the return of money will be quicker, and the profit more conſiderable.

The large Lincolnſhire ſheep is proper for ſome ſoils. The fleſh of this kind of ſheep is of a coarſe ſubſtance; and though not inclined to feed ſo quick as the Diſhley, he does not, when fat, waſte ſo much in ſize by travelling to market. His frame is larger, but his fleſh not ſo delicious, or uſeful to the breeder in reſpect to value; and there will be found, in the ſame weight, much more lean and much more bone than in a Diſhley ſheep. A labourer or hard-working man may prefer a joint of lean rank Lincolnſhire mutton to the Diſhley, that will cut from five to ſix inches deep of firm fat; but he will not find an equal weight of it ſatisfy ſo many hungry children as the Diſhley fat mutton. Without doubt there exiſts a very conſiderable difference amongſt that ſpecies we term Lincolnſhire ſheep. Some of them, when driven the diſtance of one hundred miles from their native paſtures, appear to be little

 better

better than carrion: but if thoſe ſheep, when intended to be kept until they were three years or three and a half old, or at leaſt till they were three times clipped, had a little more attention beſtowed with judgment upon them, they would be found to produce more wool, and retain their fleſh much better.

The Wiltſhire ſheep and the Hertfordſhire ſheep I do not treat of, being no judge of them. They are chiefly for folding: and the folding of ſheep I do not like; it is robbing Peter to pay Paul.

Of the tall ſlender ſheep from the mountains, ſome will thrive and fatten on a rich ſoil with luxuriant paſture; others are not to be made fat by any means.

The ſquare ſhort-legged breed from the foreſts or downs, will live on barren land, and bite the cloſeſt of any; and with good keep they will ſoon be fit for the butcher, but not very fat.

I am of opinion, all ſheep, according to their firſt value, might be improved equal to the Diſhley or long-woolled ſheep. The

Downs

Downs ſheep are the moſt uſeful and profitable next to the Diſhley; and had as much attention been paid to them by a ſet of men equally capable as the breeders of the Leiceſterſhire ſheep, they might have been brought to equal perfection. They appear to be equally profitable on ſome ſoils capable of producing carding-wool. They are good-fleſhed ſheep, and will bear more hardſhips on dry land than any long-woolled ſheep. They are naturally active, and ſome of them quick feeders. There are ſome of the Welſh ſheep very uſeful. Theſe ſort of ſhort-woolled ſheep would never be made profitable in the Lincolnſhire marſhes. The Norfolk ſheep are of a great ſize, and ſometimes profitable: but perhaps few ſheep are better kept; their winter food being ſuperior to that of any other country, and their layer continually dry. No ſheep likes or will proſper on wet land. The ſort called Lincolnſhire-ſheep do the beſt upon ſuch land.

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SECTION XXXIII.

The cheapeſt and moſt expeditious Method of feeding Sheep.

THE cheapeſt and moſt expeditious method of feeding ſheep in the winter, is to give them rape, cole, or turnips, in penns or trays, as explained in Section XII. p. 59.

Rape and cole ſhould be eaten in the ſame way as the turnips. The folding in a ſtraw-fold would doubtleſs ſave hundreds of ſheep which die of the reſp or red-water. The loſſes ſuſtained in the Lincolnſhire fens are innumerable for want of ſuch caution. See Section XXXIV.

The cheapeſt food in ſummer upon good land is graſs, although not the moſt fattening. Good ſeeds fatten them quicker upon moderately good ſoils, ſuch as do not carry more ſheep than can thereon do well; for it often happens that upon too luxuriant land ſheep thrive but indifferently, by there being

being ſuch numbers feeding on it until it actually ſtinks of them.

Great advantage would ariſe from feeding ſheep in the ſummer on green food, in the ſame manner as is deſcribed for horſes, beaſts, &c. Green tares and cabbages, &c. would be very quick-fattening and cheap food.

SECTION XXXIV.

Diſorders incident to Sheep; with the Methods of Cure.

ONE of the moſt extraordinary diſorders to which ſheep are liable is called the *red-water* or *reſp.* This diſeaſe undoubtedly is brought on by the ſtomach and bowels being overloaded with food too much abounding with juices. Turnips will give it to ſheep, as likewiſe will rape or cole; ſo will eddiſh, young clover, or any kind of graſs where rich manure has recently been laid on the land.

I had twelve acres of clover, with one hundred ewes and lambs upon it. I intended to ſow the field with turnips; but, the weather being dry, I could not plough it. In order to be ready againſt wet weather came, I had the manure carried on the land. A twenty-four hours' rain fell; and the next day three ewes were dead with the *red-water*, though both ewes and lambs had been conſtantly there for ſome weeks without a ſingle accident. It may be neceſſary to obſerve that the manure was taken out of the fold-yard, and conſiſted chiefly of rich horſe-dung, cow-dung, pig-dung, &c. It was laid in heaps, ſo that, when the rain came, the furrows ran with a black-coloured water, the juices of the manure. Since this accident I have heard and known of many ſimilar, and from the ſame cauſe. I caution the farmer againſt putting ſheep upon land newly manured, eſpecially if with freſh dung: it makes the plants to be over ſucculent for the animals' bowels.

To cure the *red-water*, the beſt remedy I know is ſoot from pit-coal, mixt up with

ſalt

ſalt water, or with ſalt and chamberlye. Mix ſo much ſalt with water that an egg will ſwim; and put for every ſheep a large ſpoonful of ſoot: ſtir the ingredients well together, and let them remain until the following day, or about twelve hours. Give three large ſpoonfulls for a doſe to each ſheep early in the morning, after it has been kept from food the preceding night. Repeat the above doſe every fifth or ſixth day, if the ſheep are much affected by the diſorder, and you will find the medicine an effectual remedy. I hardly ever knew it fail of working a perfect cure.

Raiſing the ſheep at night, and driving them about ſo as to cauſe them to empty themſelves, is another good and ſimple remedy; for a ſheep, being a greedy animal, fills his ſtomachs with food; and, being naturally indolent, he lies a conſiderable time in one poſture, which prevents a proper digeſtion, which moderate exerciſe would effectually promote. It is not uncommon for the coats of the ſtomachs to be ſo diſtended as to burſt ſome of the many ſanguiferous

veſſels with which they ſo amply abound, and whoſe uſe is to ſecrete the liquor gaſtricus, or liquor of the ſtomachs. By an accident of this kind I have had ſheep die ſuddenly; and have, upon a cloſe examination into the cauſe of their death, taken from two to three gallons of red-water from the inſide of one ſheep. The bowels were full of this water, which ſeemed tinged with blood, and emitted a very putrid ſmell. Part of the fleſh was in a mortified ſtate, and ſtunk horridly, which it will do even before life has left the ſheep.

The above preſcription will not fail of ridding the animal of this terrible diſorder. The firſt object is to cleanſe the bowels, and brace the ſtomach: the ſalt does the one, and the ſoot, I ſuppoſe, the other. This diſorder ſeldom happens in the ſummer, unleſs to a ſheep who gets over-caſt; for a ſheep does not lie ſtill in ſummer above four hours in the four-and-twenty: but in winter he lies ſtill full half the time, that is, twelve hours out of the twenty-four.

This diſorder may be totally prevented by

by following the method before laid down for fattening ſheep with turnips or cole, that is, by moving them into the ſtraw-fold at night. Do this early in the evening; and you may eaſily raiſe them before you go to bed, and with little trouble give them the quantity of exerciſe which may be thought neceſſary. The giving of freſh folds of turnips in the evening frequently brings on this diſorder, and occaſions almoſt immediate death, eſpecially if the ſheep have been kept rather ſhort of food for ſome days before. I have known fifty ſheep in one hundred die of it in the courſe of one winter. If by adminiſtering the medicine here recommended, and by uſing the ſtraw-fold, five only of the fifty had been ſaved; it would well have paid the trouble attending their cure.

It is very neceſſary that ſheep ſhould be carefully attended, that, on the firſt ſymptoms of the above or any other diſtemper, remedies may be applied, and a cure attempted in time.

There is a diſorder in ſheep called the *turn* or *giddy*. This diſorder proceeds from

a bleb of watery matters formed upon the brain. Some people attempt a cure by opening or trepanning the ſkull, extracting the bleb, and then cloſing the parts again: but this operation, however eaſy to an expert ſurgeon, is too difficult and dangerous to ſucceed in the hands of ſuch clumſy operators as are generally employed on ſuch occaſions: and ſix out of ſeven of the patients die under their hands. I have cured great numbers of this diſorder by a very eaſy and ſimple method. I take the ſheep by the ears, which I pull violently, and then cut off as cloſe as poſſible to the head: this is the beſt remedy I ever tried; and the trial is never attended with danger. I do not pretend to explain how this effects a cure: it is ſufficient for me to aſſert the fact. Perhaps the violent pulling of the ears may diſturb the collection of watery matter; and the cutting them cloſe to the head may give vent to it by the hæmorrhage which follows of courſe. Whatever may be the cauſe, the remedy is pretty ſure.

It was by accident I diſcovered this more

perfect cure for the *giddy*. When I lived with my father, one of our lamb-hogs had taken the *turn*. I ordered the ſhepherd to catch it, that I might cut off the ears. When ſheep have this diſorder, they will frequently turn round for a long time together, have a ſtupid heavy look, quit their companions and feed by themſelves. You may go very near them before they diſcover you; which ſeems to indicate that they loſe their hearing. But as ſoon as they become ſenſible of your approach, they will run as ſwift as they did before the diſorder ſeized them. The ſhepherd went behind to catch it: but the moment the lamb perceived him, it ran away, and continued running for about ten minutes. It was an excellent chace, and afforded fine ſport, which I reliſhed highly. The ſhepherd, who was a famous runner, was terribly enraged againſt the poor lamb; and, as ſoon as he overtook it, began to pull and twirl it moſt violently round by the ears. As it was at a conſiderable diſtance when he caught it, he had full time to gratify his revenge. I immediately cut off the

ears, and in two days the lamb was perfectly cured.

I had ſucceeded pretty well before the time now ſpoken of, in curing the diſtemper by only cutting off the ears: but repeated practice has proved to me in the moſt ſatisfactory manner, that pulling the ears violently before they are cut off is the beſt method of enſuring the cure: you may depend upon ſaving nine out of ten, at leaſt. I have never known this diſorder to return after having been once cured.

Thoſe ewes which have or have had this diſorder are no worſe for breeding, as the lambs do not take the diſorder from their dams.

The *foot-rot* is a diſeaſe which will attack numbers at the ſame time. Sheep, when feeding on a hot ſandy ſoil, are very liable to contract it, from the particles of ſand or gravel getting into their feet; as likewiſe in wet weather, when the graſs is long. If one ſingle ſheep ſhould be attacked by the diſorder, it would be adviſeable to ſeparate him immediately from the reſt at the time

of

of folding; for, if the ſhepherd does not uſe ſuch precaution, he may expect a great part of the flock to be infected by the ſheep treading on each other's feet. I had from a gentleman a ram who had the foot-rot, and I was ſo negligent as to put him in the month of September, with fifty ewes, upon land where I never knew ſheep to be troubled with the diſeaſe; nor had the ewes been affected before. I had before known that it was contagious, or what ſhepherds call *ſmitting*, though I did not ſuppoſe it was ſo dangerous. I thought the worſt conſequence that poſſibly could enſue would be the giving me a little trouble: and I am fond of trying experiments. A great number of the ewes caught the diſorder: nor could I get them entirely clear the whole year; although I attended them cloſely myſelf during the progreſs of their cure. However valuable a tup might be, I would not accept of him as a gift for the purpoſe of going with ewes, were he troubled with the foot-rot, unleſs I cured him firſt.

The method of cure is as follows: Pare the

the foot with great care, ſo as not to injure the quick: look narrowly for the gravel, which is often ſo much incloſed that it is difficult to extract it; and when that happens, the animal will ſuffer great pain, and ſpeedily decreaſe in fleſh. Where the gravel is, the hoof will be very hard, hot, and dry. In paring the foot, you muſt be careful not to cut ſo much as to make it bleed; for that will retard the cure. Take blue vitriol; pound it very fine, and apply it to the part affected. Some uſe for this purpoſe the blue vitriol-water, which is eaſily procured at the chemiſts' or apothecaries' ſhops, and is made by diſſolving three ounces of blue vitriol, and two ounces of alum, in a pint and a half of vinegar; and afterwards adding two ounces of ſtrong ſpirit or oil of vitriol, and letting it ſtand for uſe. Some uſe, with ſucceſs, clear ſpirits or oil of vitriol alone: but, from the violence of this remedy, it muſt be uſed with the greateſt caution. Any ſtrong aſtringent, ſuch as aquafortis, &c. may likewiſe be applied with advantage.

Much

Much rain will, no doubt, frequently occaſion this diſtemper, eſpecially if the paſture be of a hot burning nature, and the graſs long and luxuriant. The long continued wet opens the pores of the feet and cauſes them to ſwell: and, on the return of the hot weather, they are ſuddenly contracted, and incloſe ſand and other noxious matters. Indeed what we call by the general term of *foot-rot* differs widely in reſpect to cauſes or ſymptoms; and each variety of the diſeaſe requires a different treatment. In ſome caſes, on examining the ſheep's foot, you will find it much inflamed between the claws, and a ſubſtance ſomething ſimilar to wax incloſed in little bags. To cure this, get a ſmall hook made of ſtrong iron-wire, with a handle; put the hook in the hole which you will find formed by nature: take faſt hold of the ſkin, and pull it towards you, ſo that you may, with a ſharp knife, cut round the hook and take the bleb or matter clean out. Dreſs the wounds by applying tar with about one fixth part of verdegris, and a little ſalt, well mixed together.

Take

Take care to rub this compoſition in between the claws, and it will effect a cure.

The *ſcab* is a diſorder in ſheep which is eaſily cured. It is a cutaneous diſeaſe, ſomething like the itch amongſt men. If it be of a mild ſort, and the cure be attempted in time, tobacco-water (or river-water ſtrongly impregnated by ſteeping tobacco in it) will remove it, without riſk; for, as this lotion is perfectly inoffenſive, the ſheep may be waſhed with it without much danger.

If the diſeaſe is of the more virulent kind, the cure is performed by an application of the common blue ointment of the ſhops, which is compoſed of quickſilver and hog's-lard, in the proportion of two ounces of quickſilver to ſixteen ounces of the lard; and may be had, ready made for uſe, at any chemiſt, druggiſt, or apothecary's, as there is generally a large demand for this ointment for other purpoſes than that of curing the ſcab in ſheep. A pound of the ointment will be ſufficient for four ſheep. It is very neceſſary that the greateſt caution ſhould be uſed in applying this ointment, moſt eſpecially

cially if ewes have lambs ſucking them: the ſucking their mothers and hot weather will bring on or occaſion ſalivation, and prove fatal to the lambs. A friend of mine once had a very heavy loſs on ſalving his ewes at clipping-day.

My method is, to lay on the ointment in very ſmall quantities, in ſheds four inches aſunder, and to rub it into the ſkin as perfectly as poſſible.

This ointment in clumſy injudicious hands kills many ſheep in hot weather: but I do my ſheep lightly over with it at the latter end of every ſeaſon, at an expence of two-pence per head, to deſtroy fags and lice. It is a great preſerver of wool, whereas mercury-water is apt to clot and ſpoil it.

There are diſorders which are called the *meagrims*, *rickets*, and *rubbers*. Theſe diſeaſes are ſuppoſed by many to ariſe from breeding from the ſame ſort of ſheep a long time together on the ſame land: but this opinion was fully confuted by Mr. Bakewell; for he perſevered in breeding from

one

one ſort of ſheep on the ſame ſoil, for a conſiderable number of ſucceſſive years, without any inconvenience of the kind.

However, when ſheep are once infected, it is certain that, if the farmer will then perſiſt in breeding from the tainted ſtock, he will run the riſque of loſing his whole flock; for theſe diſeaſes are undoubtedly hereditary. I therefore adviſe the farmer, ſo ſoon as he perceives the diſtemper gaining ground, to change the breed; as no perfect cure has ever, to my knowledge, been performed by any means hitherto employed.

When a ſheep is attacked by the *meagrims*, the ſymptoms are, cocking his tail like a well-nicked horſe: he will canter like a lady's pad; and if you clap your hand upon his back, he will immediately drop down; which ſeems to indicate that the diſorder is ſeated in the back of the animal. *Rickets* are ſo much like meagrims, that I have never been able to diſtinguiſh the one from the other.

When a ſheep has the *rubbers*, it occaſions ſuch an itching that, if he can get near a poſt,

poſt, a tree, or any thing proper for his purpoſe, he will rub himſelf to death—he will neglect his food and fall into a regular decline, and be two or three months dying.

Heavy loſſes have been ſuſtained from the havoc made by the above diſorders, which ſhould be carefully guarded againſt.

When a ſheep is attacked by the diſorder called the *black-leg*; if he be fat, the ſooner you kill him the better; I never knew one cured. You will firſt perceive a black ſpot near the ſtifle joint, and the ſheep will become ſo lame as ſcarcely to be able to move: this ſpot generally increaſes very rapidly, and ſoon turns to a mortification. I have tried fomentations and many other remedies; but all in vain. I muſt own that I have never heard a rational explanation given of the cauſe of this diſorder; nor can I account for it. I have ſometimes been tempted to attribute the appearance of the diſorder to ſome external injury by a blow: but on reflection I have dropped that opinion: for it cannot be a bruiſe. It is more probable that it is cauſed by the bite

of

of ſome venomous reptile, as it often happens that a number of ſheep have it in the ſame paſture.

Blindneſs in ſheep is a very common diſeaſe, and is brought on by a cold falling into the eyes. The moſt diſagreeable conſequence enſuing from it is the danger of the ſheep's drowning himſelf, if there ſhould be a pond or other receptacle for water in the paſture.

What will cure blindneſs in one animal, will no doubt be good for the eyes of another. I make an ointment with honey and verdigris, called diſtilled verdigris, finely pounded. I dip a duck's feather in the ointment, and gently apply it to the eye. The feather you make uſe of cannot be too ſoft: or, if a ſkin be formed on the eye, you may put a little of the verdigris into a quill, and blow it on the eye. This diſorder will cure of itſelf, if let alone; but will cauſe the carcaſs of the ſheep to ſhrink very much.

The *white ſkit*, in ſucking lambs, is cured by a table ſpoonful of runnet or yearning

put

put into about half a pint of milk juſt taken from the cow, and given immediately; that is, before the milk has time to turn into perfect curds and whey, as the cure depends upon the milk getting into the rumen or firſt ſtomach before it becomes completely turned. This diſorder is the effect of a cold, and generally ſeizes the lamb about the time he begins to eat plentifully of graſs, and to ſuck leſs milk.

The *green-ſkit* is another diſorder in lambs. If you put a green willow round its neck, it will effect a cure.

To deſtroy *maukes* in ſheep, take two ounces of mercury ſublimate pounded, one pint of ſpirits of turpentine, and one gallon of water: mix the whole well together, and ſhake it up every time you uſe it. It is a good way to waſh the wool affected in clean water after the maukes are taken out: and, if they have penetrated the ſkin, rub on the part a little tar, to prevent the mercury from doing injury. After the wool is waſhed, you muſt apply ſome more worm-water, or the flies will ſtrike the part again.

For *fly-beating*, or *Galling*, the part muſt be covered by ſome means with cloth; and it is proper to hopple the ſheep behind, if it be upon his head, to prevent his ſcratching. The hoppling will not prevent his thriving.

SECTION XXXV.

The proper Time for putting the Ram to the Ewes; with the Method of treating the Ewes when Lambing.

THE beſt time for putting the ram to the ewes is about the tenth of October: if for early fat lambs, the beginning of September, when they have only graſs to feed on. The ſpace of five weeks is a ſufficient time for the ram to remain with the ewes.

When ewes ſeem ready to yean their lambs, great caution ſhould be uſed by the ſhepherd. He ſhould not be over-forward in giving them aſſiſtance, but ſuffer nature to complete her work. Much damage has ariſen from impatience or haſtineſs of temper on ſuch occaſions: I therefore recommend

mend the waiting with coolneſs the proper time. Circumſtances ſometimes ariſe, where help may be neceſſary, but nature will act ſufficiently her own part ninety-nine times in the hundred.

If an ewe gives ill from lambing, I always found ſpirits of turpentine applied to the part, and good nurſing with caudles, &c. to be the beſt remedies.

SECTION XXXVI.

Sheep-Shearing: Reaſons why the Time ſhould vary according to Situation.

IN ſituations near woods, which commonly abound with flies, thoſe galling enemies to new-ſhorn ſheep, they ſhould be clipped the beginning of June.

But in open countries, downs, or marſhes, it is adviſable to clip later; for there they will not be much in danger of being galled by thoſe flies which ſo cruelly infeſt them near woods or thick hedges; and as great part of the ſheep may be intended to be

made fat and ſold that ſeaſon, by clipping late you obtain a greater quantity of wool. The hot weather occaſions wool to grow faſt from the free circulation of the natural oil; and July, in my opinion, will be early enough to commence ſhearing in the laſt-mentioned ſituations.

SECTION XXXVII.

Method of treating Sheep before Shearing, by Waſhing the Wool: Reaſons why they ſhould go a certain Time in the Wool between Waſhing and Shearing.

SHEEP ſhould be waſhed ten days at leaſt, and not more than fourteen days, before clipping. If the ſheep are not ſuffered to reſt at leaſt ten days between the waſhing and clipping of them, the wool will not have recovered the natural oil which has been expelled or ſqueezed out together with the filth in waſhing; and it will be dry and harſh. Although the wool, if clipped wet, would, when firſt taken from the ſheep, weigh

weigh more than if clipped dry; yet, after keeping it a little, you will find it conſiderably lighter than what has been taken off the ſheep dry. A fleece ſhorn wet will ſoon diminiſh in weight: one taken off dry will not. The reaſon is obvious—The water which the wool imbibes by waſhing, ſoon evaporates; water being an heterogeneous intruder, and ſoon expelled; whilſt oil, one of the component principles of wool, obſtinately retains its natural ſituation.

If you ſuffer ſheep to go longer than fourteen days between waſhing and clipping, the wool will be liable to receive injury by dirt or filth; which will diminiſh the value, though it may add to the immediate weight. It will be of advantage to houſe the ſheep the night before clipping; they will then ſweat much, and rub againſt each other; which will not only add weight to the wool, but alſo ſoften it, give it a finer appearance, and abſolutely render it better. However ſome men may deſpiſe theſe *niceties* (as they

may term them), they will find their account by practiſing them.

Provide yourſelf with a bottle of ſpirits of turpentine; and if the ſhearer ſnip the ſkin in ſhearing, twiſt a bit of wool round a ſtick, which dip in the bottle, and dab on the wound. Apply then a ſmall quantity of tar to the part, which will keep off the flies, and turn the rain. The lambs, four or five days after their mothers are clipped, will be found to have the fags and lice. Theſe vermine may be deſtroyed by a lotion compoſed of arſenic mixed up with water and ſoft ſoap. The following is a recipe for making the lotion: Two pounds of arſenic boiled in a ſmall quantity of water, which afterwards may be increaſed to the quantity of twenty gallons by adding ſo much more water. In this mixture diſſolve two pounds of ſoft ſoap: you then will have ſtuff ſufficient to waſh a number of lambs. The readieſt method is, to put it in a tub large enough to contain a lamb: and the ſhepherd muſt have an aſſiſtant; for one perſon muſt

muſt lay hold of the fore legs of the lamb, and with the other hand take hold of the crown of the head; as the head muſt on no account be immerſed in the waſh, ſince ſwallowing a very ſmall portion would inevitably poiſon the lamb. Let the aſſiſtant take hold of the hind legs, and in this manner dip the lamb, which need not remain longer in the tub than is ſufficient to wet his wool. An empty tub muſt be at hand, to let the lamb ſtand in to drain the water from the wool, or he would carry away a great quantity of ſuperfluous water with him. When the lamb is placed in the tub to drain, the men muſt with their hands wring the wool, to force out the wet. The tub laſt mentioned muſt be frequently emptied.

SECTION XXXVIII.

Deſcription of a Ram proper to get the beſt Stock.

THOSE who wiſh to reap great profit by breeding, ſhould beſtow a particular at-

tention in the choice of a ram: for by a good choice their wiſh is moſt likely to be gratified; by a bad choice, they at beſt are ſure to receive little emolument, and perhaps may ſuffer great loſs.

The male animal communicates his good or bad qualities to his offſpring. To prove this, I have tried many experiments with ſwine and dogs. By putting to a long-eared ſow, firſt a long-eared lean boar of the ſame kind, and then a tunky ſhort-eared one, I have procured at the ſame litter two ſpecies of pigs, which, though all ſuckled together and kept alike, ever after remained diſſimilar and diſtinct: thoſe by the ſhort-eared boar fattened with as little keep as I ever ſaw; the others by the long-eared ſire were lean, and could not be made fat without a very large quantity of food.

Reſpecting the produce of the above ſow, it proves that when a ſow is brimmed by one boar, if you ſend her to another, ſhe will in all probability have more pigs. This ſow had twelve pigs, ten long-eared white ones, and two tunky black ones. The ſow was white

white and long-eared; the boar the ſame. The tunky boar was black. A man who has but one ſow, and is deſirous to have ſome roaſting pigs, ſome of a ſmall kind for pork, and ſome of a large kind for profit, may in all probability have them at the ſame litter. As a ſow gives more milk the firſt month than afterwards; it would do well to kill a few pigs off at the expiration of that time: the ſow would rear the remainder better, and at leſs expence. And if two ſows are kept inſtead of one, the roaſting-pigs would nearly be clear gain.

With grey-hounds I have made ſimilar trials. A very middling bitch, if put to a capital dog, breeds a good-running dog: but put the beſt bitch to a bad-running dog, the whelps will be good for little or nothing. It is my opinion, that race-horſes are the eaſieſt to breed of any, as the male and female are ſo ſufficiently tried that they cannot vary much. There are no general rules without exceptions; but fewer in the following than any—"Like get like."

To chooſe a proper ram, it will be of advantage

vantage to keep in mind what has already been ſaid in deſcribing the beſt ſort of ſheep, and to remember the Diſhley, new Leiceſter or Bakewell ram: all ſheep, whether you breed them large or ſmall, for foreſt or paſture, ought to be of that make.

His back or upper part ſhould be like the top part of a tortoiſe; his head ſmall, and his back broad. He ſhould be broad in his breaſt, round in his ribs, wide in his hind quarters, let down low in his twiſt. His tail ſhould ſtand low; ſo that the fat of his cuſhion will deſcend farther down into his leg towards the ſhank. His bone muſt be ſmall, his eye quick. As to ſize, every one muſt judge for himſelf, and ſelect him according to the purpoſe he may want him for. I recommend to keep a ſheep within ſome moderate compaſs; for when you make an attempt for a larger ſize, you will get more bone, and inevitably loſe ſo much fat or thrift; and, as you will loſe it gradually, you may go too far in increaſing the bulk of your ſheep, before you perceive it: and thrift in all animals intended to be fattened,

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is the object which ſhould be moſt carefully attended to.

Let the ſort of wool be according to the intended ſituation; for I am of opinion, that every ſort of wool may be grown on one ſort of fleſh; and there are good and bad-fleſhed animals of all deſcriptions.

Rams of different ages have been recommended by many different perſons: I have tried them from one year to ten years old, and never found any material difference in the ſtock in reſpect to quality; but in quantity I certainly have. It may eaſily be ſuppoſed that a ram two or three years old will get more ſtock than one ten years old. The proper number of ewes for a ſhearling ram is from fifty to ſixty. I have turned a two-ſhear ram to nine ſcore of ewes, and of that number only five miſſed. I had that tup from Mr. Chaplin; my men called him the Grand Seignor; but I queſtion whether his Sublime Highneſs made ſuch effectual uſe of his ſeraglio.

After all, I muſt own that I do not approve of any ram being put with more than

ſix

ſix ſcore of ewes: it is, in my opinion, as many as any one ought to have. If he is a valuable ram, he ſhould be allowed a *teazer*, ſufficiently ſecured to prevent miſchief, and the ewes ſhould be put to him in a proper place.

SECTION XXXIX.

Foreſt Sheep, and the Improvement that Kind are capable of.

FOREST ſheep ſhould not intermix ſo as to croſs the breed, but be kept to their own kind; for many reaſons—their wonderful agility in leaping from rock to rock, their activity and ſpeed in ſearch of food, that wonderful inſtinct they are endowed with by nature, in lying down in ſuch places as the ſnow ſhall not drift over them: a caution ſo abſolutely neceſſary to ſheep in mountainous parts. The Diſhley ſheep are the reverſe of the foreſt ſort; for though the Diſhley with great care and good food

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are ſo very profitable, yet are they the moſt tender ſheep I ever knew. They are ſtarved if the leaſt neglected: they ſoon become fat in good keep, but poor with indifferent.

If you chooſe to croſs the breed of foreſt ſheep with the Diſhley, draw a few of the beſt into an incloſed paſture, and put your favourite ram to them. This will be found the ſureſt and beſt method to improve them; but I do not think it would anſwer to ſtock the mountains with ſheep ſo bred: they would require more care and attention than could be there given them.

SECTION XL.

Deſcription of Fold-yards: Neceſſity of a Receptacle for the Juices which drain from the Fold-yard; and the beſt Method of applying the ſame.

THE fold-yard ought to be ſo ſituated amongſt the buildings as eaſily to receive every ſort of manure; which the pigs by routing

routing and turning it over continually will thoroughly intermix. The cattle will eat much of the litter which is thrown out from the horſe-ſtables, which always contains ſmall quantities of hay waſted by the horſes, and at times a little corn and other matters, which by this management will turn to the farmer's profit in a greater degree than if the ſame quantity of ſuch hay had been taken from the ſtack, and immediately ſpread in the fold-yard; as the cattle in this caſe eat a great deal of the horſe-dung or refuſe ſtraw along with it. The fold-yard ſhould be nearly level, with a ſmall inclination or ſlope towards the receptacle or reſervoir.

I cannot approve of the management of thoſe who would give the fold-yard the form of the inſide of a bowl: in ſuch a concavity, the cattle on the approach of winter would ſtarve by lying ſo much in wet: neither would the manure be ſo ſoon fit for uſe; for the materials it is compoſed of, if conſtantly covered with water, would ſcarcely ever rot. Any man may ſatisfy himſelf of

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the truth of this aſſertion, by immerſing manure in water and keeping it conſtantly covered.—A ſingular proof of this happened not many years ſince in the vicinity of London. In ſinking a well at Tottenham Court, on the eſtate of the late lord Southampton, at about eighteen feet from the ſurface the workman dug into ſomething ſoft, which, upon being ſent up in the bucket, was found to contain the paunch or *rumen* of an animal, with a quantity of undigeſted hay, to all appearance as if it had been chewed but a few hours before. On further ſearch, the horns of the cow and part of the head with the hair on, were ſeparated by the axe and ſpade. Incredible as it may ſeem, the whole appeared as freſh as if they had been recently depoſited; though afterwards proved to have lain there upwards of forty years. Upon enquiry, it was diſcovered that the identical ſpot had been a large pit, or pond of water, into which at the time of the great diſtemper amongſt the horned cattle a neighbouring cow-keeper, who then rented the place, had thrown a great num-

ber of cows which had died of it. The pond afterwards was filled up, chiefly by rubbiſh from London; and it is almoſt unneceſſary to add, that the preſent proprietor immediately had the well cloſed again.

The fold-yard, then, ſhould have a ſmall declination or ſlope from where the rain falls from the buildings, and in general from every other part of the premiſes, ſo that the refuſe of the houſe, and all other waſhings, may gently ooze into the reſervoir or common receptacle. If the fold-yard is paved, one inch drip in twelve feet will be found to be ſufficient.

The reſervoir muſt be made ſufficiently capacious and deep enough to receive a quantity of roots, corn-ſtubble, earth from different ſoils, &c. which will imbibe the juices as they gradually ooze in, and form a matter that, when taken out, will ferment ſtrongly, and in this manner be worked into a good compoſt very little inferior to the fold-manure. By uſing this compoſt (as preſcribed in the Method of making Fallows) at the latter end of the

the year, or ſo ſoon as harveſt is over, the farmer will reap more benefit than at firſt he will think poſſible. He will raiſe a dunghill from the greateſt nuiſances; for what can be more injurious to land than the roots of ſtubble, which, like wood, rob the ſoil of nouriſhment, and keep the parts from adhering ſufficiently cloſe to aſſiſt vegetation in the enſuing crop.

It is not enough to make the reſervoir ſufficiently large: the bottom of it muſt be well rammed in with ſtiff clay to ſuch a thickneſs as to retain the juices, and not ſuffer the fine parts to drain away. The liquor or juice retained in the reſervoir too ſoon and readily evaporates, and is loſt when thrown on the land in its natural ſtate. The farmer therefore will be careful to have all the parts well worked together into one body, as directed above.

SECTION XLI.

Reaſons why Stall-feeding in Summer ought to be practiſed, from Tares, Clover-graſs, Cabbage, &c.

STALL-FEEDING horſes for the plough &c. has already been recommended in Section XIV. p. 108; where I mentioned the uſes of clover: but fold-feeding cattle, pigs, foals, in ſummer, and ſome other circumſtances were not ſufficiently noticed. From ſtall-feeding in ſummer the farmer may derive great aſſiſtance towards improving his land; as abundance of the beſt kind of manure may be made by cattle of all kinds eating green fodder in folds, or ſtalls: and I am firmly of opinion that beaſts intended for the ſlaughter-houſe will fatten much quicker by ſtall-feeding; as, in the heat of ſummer, the flies diſturb their reſt, make them uneaſy, and occaſion them to run about continually;

continually; which muſt prevent their becoming fat.

Hunters and race-horſes would, from the quantity of meat they eat, be as fat as pigs, if exerciſe did not keep them down. It would be ſingular to ſee an Iriſh labourer, accuſtomed daily to run up and down a ladder four ſtories high, over-loaded with fleſh: a fat alderman is not a very great curioſity. Therefore, were cattle tied up, and ſuffered to enjoy reſt, by eating their food in peace, they would feed more heartily, and the mown food would not be liable to be ſpoiled by dunging or ſtaling upon it; which muſt happen to a conſiderable part when cattle feed in the field.

Red-clover, if intended for horſes to feed upon, ſhould be brought into the fold-yard or ſtable; as animals of weight by treading upon a plant of ſuch a pulpy nature will ſpoil much more than they eat. To be convinced of this, let the *old* farmer put four horſes upon an acre of clover to depaſture it, and let him keep an account of the number of days the piece keeps the four

horſes. Then let him keep the ſame number of horſes in the ſtable, and feed them with the clover mown from a field of the ſame extent. He will find the horſes which have depaſtured to have deſtroyed three times as much with their feet as with their mouths—beſides the loſs of that manure which they would have made by being fed in the ſtall or fold.

We will now conſider the objections commonly made againſt ſtall-feeding. The firſt will be, that clover is not fit to cut ſo early as it is to depaſture. The ſecond objection is the trouble of cutting and fetching it home. The firſt objection I allow—it is a real inconvenience; as the month's keeping in May is of great value: but if we, the preceding year, make into hay a proportion ſufficient for that month or until the clover gets ſtrong enough to mow, the difficulty is got over.

To the ſecond objection I ſay, that the trouble of fetching home the clover is little more than that of driving the horſes to and from the cloſe where it grows: and if you feed

feed them in the fold, you will not be under the neceſſity of fetching them a mile or two when you riſe to your labour in the morning, nor of taking them the ſame diſtance in the evening.

I have frequently mentioned cutting wheat-ſtraw with the clover; and I do moſt earneſtly recommend the practice with every kind of green food, for the reaſons already ſtated, and on account of the great ſaving which the farmer will find by the uſe. I likewiſe adviſe to give the horſes which eat green food their corn late in the evening: the laſt thing you do before you go to bed. If you give it in the morning, and then immediately go to work, the corn quickly paſſes without contributing to their ſupport by proper digeſtion.

From the refuſe of the green fodder, with a ſmall addition of other food, a number of pigs may be kept; and they would increaſe the manure-hill.

In reſpect to foals, they might not poſſibly do ſo well with this management: but if they are put in the ſtall for the day, and

well fed and let out for the night in ſome paſture, they would add to the dunghill, and thrive much better than if (as they frequently are) either ſtanding in a pond of water the whole day, or under ſome tree, ſtamping their manure, to no uſe. If they drop it in the pond, it is totally loſt. Let the farmer calculate the damage done to graſs by cattle trampling upon and bruiſing the very roots, and he will ſoon give the preference to ſtall-feeding.

Feeding with cabbages is rather a new plan, but I am of opinion it will ſoon be generally practiſed. They afford abundance of good food in ſummer; and, as they may be cut two or three times, great profit muſt undoubtedly ariſe from the uſe of them. The expence of raiſing cabbages is not great.

SECTION

SECTION XLII.

Uſe of a Fold in Winter to turn Stall-fed Cattle in.

STALL-FED cattle without doubt would thrive better to have their liberty a few hours in the middle of the day; for by continually ſtanding in one poſture the animals are prevented from indulging themſelves, and rubbing their hides, in which they take particular delight; they feel uncomfortable and cannot ſleep eaſy, and this will prevent their feeding freely. Conſtantly breathing in the ſame crib or trough makes the place unpleaſant to the beaſts: a free uncontaminated air is as neceſſary to them as to men.

Moſt of us know what effect foul air has upon the human frame, and but few are ignorant of the bad and often fatal conſequences of it to cattle: their breath, however naturally ſweet, may become very

ſtrong from the nature of the food they take, ſuch as turnips, cabbages, linſeed-cakes, &c. which, without a ſufficient circulation of air, will fill the whole place with a putrid ſteam highly noxious to beaſts and man.

I obſerved the cow-keepers in the vicinity of London, who in general keep a very great number, make it a conſtant practice to turn their cows after milking into a cold and dirty layer, or fold as we call it. Being a brewer, and keeping cows myſelf, which were fed nearly as thoſe in the neighbourhood of London are, I tried the method, and was ſoon convinced of the utility of it. For, having made particular inquiries of the ſervant who fed my cows, I learnt that ſeveral at one time ſeemed to loathe their food, that in general they did not appear to have very good appetites, and that ſome would not eat their grains for ſome days together. On my adopting the cuſtom of turning them out for ſix hours in the day-time, the cows ſoon began to appear healthy and to fatten apace, and were never off their appetite.

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With grains mixed with cut ſtraw I have fed cows to be very good beef; and have milked them to the day on which they were killed.

I have found it an excellent method to give chopped ſtraw to beaſts with all kinds of rich food; as it is more pleaſant to their palates, makes them ruminate more, promotes a regular digeſtion, and prevents the too quick paſſing of the moiſt or juicy food through the inteſtines.

SECTION XLIII.

Method of treating Horſes for Huſbandry in Winter, on a much better and cheaper Plan than is uſually practiſed.

HERE again cut ſtraw will be found of infinite uſe, and ſave many loads of hay. Although hay, in ſome parts of the kingdom diſtant from a market, may not be frequently offered for ſale, and conſequently the farmer not ſet ſo high a value upon it; yet

yet if he kept a regular account of what hay is eaten by his horſes during the winter, and charged the coſt and trouble of making and harveſting it, and the rent of the land, he would find them a ſerious and heavy expence; as will be more fully explained in Section XLVI.

I am of opinion, that in London, where hay is generally dear, it is the moſt expenſive thing to feed a horſe with. I knew a ſtable-keeper of eminence, who was of the ſame opinion: he always ſaid hay was dearer than corn; and as he dealt largely in both, he was likely to know ſomething of the matter. I have always found it to be ſo.

I have tried experiments to keep horſes upon grains, potatoes, ground corn, bran, malt-combs, carrots, &c.; but never found any thing ſo cheap as chopped ſtraw. During the winter 1795 and 1796, I did not ſuffer one of the nine horſes I kept for the uſe of my brewery to eat any hay whatever. I kept two ſaddle-horſes, which at times were ridden hard, and were never free from fair

work (for I do not like man or beaſt to be idle); the principal part of their food was likewiſe chopped ſtraw, with a regular quantity of corn. I ſet apart for this purpoſe the produce of ſix acres of wheat *ſcouge*, or wheat ſtraw laſhed. I ſet a man to thraſh ſome of the ſtraw over again, by way of ſeeing how much wheat would be conſumed in the ſtraw. He was two days on this buſineſs: but the wheat he got out was worth no more than the coſt of three days' labour. I muſt alſo acknowledge that the wheat in this ſtraw had a great deal of the fuzzball or ſmut, and for that reaſon was not thraſhed, but *laſhed*, leſt the flail ſhould bruiſe the fuzzballs, and turn all the wheat black. Wheat at the time was eight ſhillings per buſhel. I therefore ſaved the wheat-ſtraw, and added ſix acres of Tartarian oats, which were remarkably long, ſix feet upon an average. This quantity of oats and wheat-ſcouge ſerved my nine horſes from the middle of September 1795, to the month of June 1796, without any rack-meat or graſs. In the month of June

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the nine draught horſes were turned out to graſs, during night.

It is to be obſerved here, that I do not ſpeak of chopped ſtraw as a ſubſtitute for corn: but I mean that it may well ſupply the place of hay; and in ſuch reſpect will be found a great ſaving even for the greateſt part of the ſummer.

The two ſaddle-horſes were not much in the ſtable in the ſummer; and the ſix acres of each ſort, as juſt mentioned, beſides producing food for my nine draught-horſes, and ſome given to cows, fed my ſaddle-horſes likewiſe until harveſt, and for a month afterwards: the whole being a period of thirteen months. Some of the wheat-ſcouge was left. It is to be noticed, that during the ſummer months I had graſs mowed, which was mixed with the cut ſtraw.

Now, let the farmer compare this method in point of expence with that which he has been accuſtomed to; or let him attend to the calculation of expence of my own for one or two years prior to the time I have been

been ſpeaking of. I charge the ſame number of horſes with the rent of a cloſe, for which I pay £.28 7 0
Tythe 1 7 0
Expences of harveſting at 5 s. per acre 2 5 0

£.31 19 0

If the eddiſh pays the aſſeſſments of different kinds, it is as much as can be expected. I then bought not leſs than forty pounds worth of hay, excluſive of the expences enumerated. The weekly allowances of corn were two quarters of oats and nine buſhels of beans. Next winter when I uſed chopped ſtraw, I ſtinted them to a ſhorter allowance of ſix buſhels of beans, and dropped the uſe of oats. For ſix ſucceſſive weeks I gave them potatoes: but, having found one horſe dead in the ſtable, and in a few days another very ill, I dropped the uſe of that kind of food; though I am ſtill in doubt whether the potatoes were the cauſe of his death. As horſes are remarkably

bly fond of the root, my man might perhaps give them too great a quantity.

The horſe which was found dead ſeemed to have died without pain. He had eaten up all the food given him over night. The men left the ſtable at nine o'clock in the evening, and, at their return next morning before ſix, found him lying in ſuch a poſture, that they thought him only ſleeping: he had not in the leaſt diſturbed his litter, which he muſt have done had he ſtruggled.

I will now ſtate the difference in reſpect to keep for two winters.

Expences according to the Old Method.

	£.	s.	d.
To hay	71	19	0
2 Quarters of oats weekly—			
104 quarters, at 1*l.* 10*s.*	156	0	0
9 Buſhels of beans weekly—			
468 buſhels, at 6*s.*	140	8	0
£.	368	7	0

Expences according to the Improved Method.

	£.	s.	d.
To ſix acres of wheat-ſcouge at 2*l.* 2*s.* per acre	12	12	0
Allowing 1*l.* 1*s.* per acre for the wheat, which is by far more than it is worth, as many farmers would not have accepted of it for thraſhing	6	6	0
Six acres of oats, at 10*l.* 10*s.* per acre	63	0	0
Cutting ſtraw; one man, fifty-two weeks, at 12*s.* per week	31	4	0
Six buſhels of beans for fifty-two weeks, at 6*s.*	93	12	0
The ſum total	£.206	14	0

	£.	s.	d.
Firſt method	368	7	0
Improved ditto	206	14	0
Balance in favour of the Improved Method	161	13	0
	£.368	7	0

The work of the horſes was nearly the ſame each winter. Twice in every week ſix of the nine were uſed to go from Doncaſter to Sheffield with a waggon loaded with about 8co gallons of ale. The weight of the waggon and ale exceeded ſix tons; conſequently each horſe had full one ton to draw for his ſhare. The diſtance between Doncaſter and Sheffield is eighteen miles, which made in the aggregate ſeventy-two miles per week: but they frequently had to go a mile beyond Sheffield.

The journey to Sheffield and returning home took up moſt commonly 22 hours: the ſpare days they were employed either going out with ale, or at plough. I could perceive no difference in reſpect to the condition of the horſes between the years they were fed according to the firſt method, and thoſe they were fed, according to the improved method, with ſtraw, &c. They performed their work well each year; and they certainly had enough to do.

It may not be unneceſſary to obſerve, that great part of thoſe winters in which the horſes

horſes were fed with ſtraw, each horſe worked his dray, which weighed about twenty-two hundred weight: but I found this hurt the horſes' backs very much, and therefore gave it up.

In the year 1793, I erected a mill for the purpoſe of grinding oats and beans for my horſes. But I was much diſappointed: for, contrary to my expectations, I found this to be the worſt of all methods; though I perſevered in it for ſome time, thinking it might anſwer in the end. At firſt I gave the number of horſes before mentioned two quarters of oats and nine buſhels of beans a-week, only a little broken: they ſoon loſt their fleſh. I then had both oats and beans ground to meal: but the horſes appeared worſe. Suſpecting that the men poſſibly might rob the creatures of their corn, I roſe early and attended them whilſt eating their corn, both morning and evening: but, in ſpite of all my vigilance, they continued decreaſing in fleſh. Still I thought it impoſſible the corn ſhould become worſe by being ground. My men, however, did not like the trouble of grinding: and as at the

time we were much hurried with buſineſs, they ſometimes neglected it, and at length gave it up entirely; which I was not ſorry for. I was really aſhamed of this ſcheme; for it had coſt me upwards of twenty pounds to erect the mill. I do not here eſtimate the value of the power given to the mill-work, as that part was made already for the brewery.

I could not in any manner ſatisfactorily explain to myſelf why corn ſhould be ſo much worſe for grinding; but I ſaw, a ſhort time after, another proof that it really is ſo. I had occaſion to go a journey; and, the weather being fine, I got upon the box with the ſtage-coachman. He had a pair of very fine leaders in excellent condition, which I took notice of and praiſed: but the coachman ſaid, I ſhould ſee them ſo tired before they got to the end of the ſtage, that he ſhould be hardly able to whip them on. I expreſſed my ſurpriſe at this, as it was but a fifteen miles ſtage, and aſked him whether his horſes were *ſoft*. He replied, No; it was the fault of his maſter, who had bought a quantity of bran, and mixed it

with

with ground oats and beans; which food made the horſes ſo weak, that in ſuch hot weather as we then had they could ſcarcely crawl after they had gone three or four miles. "You will preſently ſee them," added the man, "in ſuch a miſerably relaxed condition, they will be as white as your ſhirt, and ſweat in ſuch a manner as to make one pity them." The corroborating evidence of the coachman convinced me of the cauſe of my horſes looking ſo bad: but, being deſirous of hearing whether the coachman was capable of giving any reaſon for his aſſertions, I told him, I always underſtood that it was beſt to feed horſes with ground corn. "Then you underſtood wrong, maſter," ſaid he; "for I know my horſes have been much weaker ſince they have been ſo fed." "But," ſaid I; "probably they have leſs now than when they fed upon unground corn." He replied, "No; for they have all they will eat." As this man had ſpent his life amongſt horſes, in his youth was brought up in the ſtable, afterwards a poſt-boy, and then a coachman, I had the curioſity to

enquire of him how the different maſters he had lived with uſed to keep their horſes. Amongſt the number he mentioned, there was one who made uſe of chopped ſtraw, with one third of ſaintfoin and beans, but no oats; and whoſe horſes performed their work better and were ſtronger than any others he had ever met with. He ſaid, that for middle-aged horſes the beans were not ſplit; but for the very old, or the very young, they were, and that the harder the beans the better. The quantity of beans given with the ſaintfoin and ſtraw appeared very ſcanty to me; but the coachman aſſured me they were fully ſufficient.

I am now convinced that ground corn is not proper to be given to working horſes. If a horſe ſtands in the ſtable, he will fatten on bran, which will not ſupport him if he has common exerciſe, as his carcaſe will ſoon ſhow. A horſe will fatten ſooner at graſs in a good paſture, than in a ſtable on the beſt of corn; but in the latter he acquires a firm hard fleſh which will bear work; and in the former only a waſhy ſoft fleſh, which diminiſhes with trifling exer-

ciſe. In ſhort, a horſe that ſtands in the ſtable to be *made up*, will fatten with almoſt any thing. I have tried carrots, potatoes, bran-paſte, &c. but the great deſideratum is to keep working horſes well and cheap; and, in thirty years' experience, I never yet have found any thing equal to chopped ſtraw with corn.

I have tried beans in the ſtraw; and excellent food they yield after Candlemas. Peas are improper; for pea-ſtraw is ſo crooked as to prevent the cutting it ſhort enough, and the horſes will throw it out with their noſes.

Great part of the ſavings ariſing from the uſe of wheat-ſtraw depends much upon the man who cuts the ſtraw, and him who gives it to the horſes. For, if the man who ſerves the horſes will not give them a little at a time; but, on the contrary, to ſave himſelf trouble, throws in one ſkuttlefull after another, and continually keeps the manger full, the horſe in that caſe will not thrive, and, inſtead of ſaving, the food recommended will prove expenſive. If a ſmall quantity at a time were thrown in, the horſe

would be enticed to feed; and chopped ſtraw, mixed as before directed, would be found to anſwer every purpoſe.

Let the horſe continually have a clean manger. When he firſt comes into the ſtable, he will eat the ſtraw greedily by itſelf, if you put but a ſmall quantity in; when you find he begins to tire of ſtraw, give him a few beans with it; always taking care to deal out with a very ſparing hand, until he is full enough; which is eaſily known to an obſerving feeder.

In my opinion, if to a quick-feeding hungry horſe you were to ſpread a quartern of oats with an equal quantity of chopped ſtraw, over the bottom of the manger, in ſuch a manner that he muſt take ſome time in licking them up, and be obliged of courſe to chew every oat; it would anſwer the purpoſe of twice the quantity of the ſame corn thrown into the manger on a heap. For, in the latter inſtance he would ſwallow the oats whole, and they would paſs through him without being properly digeſted. Chopped ſtraw is good for making a horſe chew and take pains with his food: and I inſiſt upon

upon it, that he will thrive better on it than on any quantity of corn and hay from natural graſs, given in the uſual manner. Some horſes will eat this kind of food ſtill better if it be watered in a tub, before you put it in the manger.

If you take a horſe out of a graſs-field in the morning, and give him, according to the cuſtom of moſt farmers, a feed of corn, and immediately afterwards ride or plough with him, or give him any fatiguing or hard exerciſe, the corn will be of little uſe, as it will quickly paſs off with his graſs. But, if you with more judgment give him the ſame quantity of corn over-night, it will then, from the inactivity of the animal, have time to digeſt in his ſtomach.

SECTION XLIV.

Method of Soiling Horſes for Huſbandry; and the great Advantage ariſing therefrom in Summer.

WE have repeatedly taken pains to inculcate the advantage of uſing chopped ſtraw: and in no one inſtance will the farmer find

it more highly beneficial than in mixing full half ſtraw cut with the green fodder. It is as bread to meat with human beings; it imbibes the redundant juices of the green food, attenuates the viſcoſity of the humours in the body, promotes the circulation, and the diſcharge of noxious and excrementitious matter, and affords a moſt wholeſome nouriſhment to the horſe, as the ſleekneſs of his coat will bear witneſs.

Soiling a horſe with green food only is very apt to engender corrupt humours in the ſtomach, and renders the animal too laxative to ſupport any hard work or violent exerciſe: ſuch food paſſes ſuddenly through the horſe; and this crudity is moſt erroneouſly termed quick digeſtion, not knowing that digeſtion means the diſſolution of the food ſo minutely as to enable it to enter the veſſels and circulate with the maſs of blood.

A horſe will eat any ſort of graſs, when mown and laid before him in the ſtable or fold. The bent left in paſtures where oxen and ſheep feed, would thus feed a number of horſes; as likewiſe the graſs and weeds under

under trees or hedges. Some tether a horſe in thoſe places: this is better than not eating the graſs at all. But nothing is ſo good as mowing; as by that means the horſe makes manure, and the graſs grows finer. On the contrary, the part on which the horſe is tethered, gets coarſer and coarſer; for he depoſits all his urine and dung upon the very ſpot of ground where he ought not. Road-ſides, and all places where weeds and a ſmall quantity of graſs grow, are worth mowing, were it only for making manure.—Indeed, weeds in highways ought always to be cut down, to prevent the ſeeds ſhaking; for thiſtle-ſeed will blow for miles. There are in ſome fields near London more thiſtles than corn, from neglecting, I ſuppoſe, to deſtroy them before the ſeed ripens. If the above cautions were attended to, there would be no want of manure in places where the produce of the land is conſumed upon the farm.

There are many other advantages attending the ſoiling horſes in the ſtable: but as they have been frequently ſpoken of in this work, it is needleſs to ſay more here.

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SECTION XLV.

Obſervations made by the Author in valuing Eſtates for different Gentlemen, deſcribing the Old and New Syſtem of Huſbandry, with Debtor and Creditor Account: the great Advantage of the New Syſtem, in many Inſtances from 50 to 100 per cent.

MY firſt obſervation is upon a tillage farm in the neighbourhood of Doncaſter, conſiſting of 139 acres. I ſhall firſt deſcribe the management, and next the method which ought to be purſued. To make each as clear as poſſible, I lay down the following debtor and creditor account, beginning with the Old Syſtem.

Rotation of Crops uſed under the Old Syſtem.

Dr. to EXPENCES.	£.	s.	d.	*Cr. by* PRODUCE.	£.	s.	d.
To 23 acres wheat, ploughing, ſowing, &c. at 7s. per acre	8	1	0	Wheat, 23 acres, at 7 loads per acre, at 18s. per load	144	18	0
Seed, 23 loads, at 18s per load	20	14	0	Barley, 9 ditto, at 4 qrs. per ac. at 25s. per quarter	45	0	0
Reaping, leading, &c. at 10s. per acre	11	10	0	Oats, 23 ditto, at 4 qrs. per ac. at 12s. per quarter	55	4	0
Thraſhing, dreſſing, 161 loads, at 1s. per load	8	1	0	Beans 4½ ditto, at 3 ditto per acre, at 24s. per qr.	16	4	0
	£48	6	0		£261	6	0

Dr. to EXPENCES.	£.	s.	d.
Brought over -	48	6	0
Mowing ſtubble, 3s. per acre	3	9	0
9 acres of barley, ploughing, &c. at 7s. per acre	3	3	0
Seed, 4 quar. 4 buſh. at 25s. per quarter	5	12	6
Reaping, leading, &c. at 8s. per acre	3	12	0
Thraſhing, &c. 36 qrs. at 1s. 6d. per qr.	2	14	0
23 acres oats, ploughing, &c. at 7s. per acre	8	1	0
Seed, 14 qrs. 3 buſh. at 12s. per qr.	8	12	6
Reaping, leading, &c. at 6s. per acre	6	18	0
Thraſhing, &c. 92 qrs. at 1s. per qr.	4	12	0
4½ acres of beans, ploughing, &c. at 7s. per acre	1	11	6
Seed, 2 qrs. 2 buſhels, at 24s. per qr.	2	14	0
Reaping, &c. at 8s. per acre	1	16	0
12 acres hay, harveſting, at 5s. per acre	3	0	0
20 acres fallow, four times ploughing, &c. at 5s. 6d. per acre	22	0	0
142 loads of manure at 8s. per load	56	16	0
Rent	110	0	0
Aſſeſſments, at 5s	27	10	0
	320	7	6
Profit	130	8	6
	£450	16	0

Cr. by PRODUCE.	£.	s.	d.
Brought over -	261	6	0
59½ ac. under plow 20 in fallow 59½ in graſs			
139 total quan. of ac.			
59½ acres ſtraw, &c. at 1l. per acre	59	10	0
12 ditto hay, at 1 ton per acre, 4l. per ton	48	0	0
Profit on 5 cows, at 5l 5s. per cow	26	5	0
Profit a bull makes per annum	5	5	0
9 wethers	18	0	0
20 fat lambs	15	0	0
Wool, 30 fleeces, at 3s. each	4	10	0
1 horſe (ſuppoſe) ſold in 2 years, will be the half of a horſe in this year's profits	8	0	0
Pigs - - -	5	0	0
	£450	16	0

Errors excepted.

Rotation of Crops under the New System.

Dr. to EXPENCES.	£.	s.	d.
20 *Acres in Turnip Fallow.*			
2 ploughings, &c. carrying twitch off, &c. at 7s. each -	14	0	0
6 loads manure per acre, leading on, &c. 8s. per load	48	0	0
Drilling, at 2s. 6d. per acre	2	10	0
Seed, 6d. per acre	0	10	0
Hoeing, and 3 times ploughing, 2s. each time per acre	6	0	0
20 *Acres Wheat Crop.*			
Ploughing, sowing, &c. 7s. per acre	7	0	0
Seed, 20 loads, 18s. per load	18	0	0
Reaping and leading, 10s. per acre	10	0	0
160 loads thrashing, &c. 1s. per load	8	0	0
Stubble mowing, &c. 3s. per acre,	3	0	0
20 *Acres Peas Crop.*			
Ploughing, harrowing, &c. twice, 7s. per acre each	14	0	0
Seed 10 quarters, at 32s. per quarter	16	0	0
Drill. 2s. 6d. per ac.	2	10	0
4 loads manure per acre, leading, &c. at 8s per load	32	0	0
	£181	10	0

Cr. by PRODUCE.	£.	s.	d.
20 acres turnips, at 4l. per acre	80	0	0
20 ditto wheat, 8 loads per ac. 18s. per load	144	0	0
20 ditto peas, at 12 loads per ditto, 12s. per load	144	0	0
20 ditto barley, at 4 qrs. per ditto, 25s. per qr.	100	0	0
20 ditto clover, at 2 ton per ditto, 4l. per ton	160	0	0
20 ditto wheat, at 8 loads per ditto, 18s. per load	144	0	0
80 acres straw, 20s. per acre	80	0	0
Profit brought from account of 10 acres managed according to New Syst. See p. 240	80	9	
	£932	0	0

Dr. to EXPENCES.	£.	s.	d.	*Cr. by* PRODUCE.	£.	s.	d.
Brought over -	181	10	0	Brought over	932	0	0
3 ploughings per ac. 1s. 6d. per ac. each	4	10	0				
Reaping and thrashing 240 loads, at 8d. per load	8	0	0				
20 Acres Barley Crop.							
Ploughing, &c. and sowing, 7s. per ac.	7	0	0				
Seed, 4 bush. per ac. at 25s. per qr.	12	10	0				
Clover-seed, 14lb.							
trefoil, 6lb.	8	10	0				
Reaping and leading, at 8s. per acre	8	0	0				
Thrashing, &c. 80 qrs. 1s. 6d. per qr.	6	0	0				
20 Acres Clover-Grass.							
6 loads manure per acre, 8s. per load	48	0	0				
Mowing, &c. twice, 6s. per acre	12	0	0				
20 Acres Wheat Crop.							
Ploughing, sowing, &c. 7s. per acre	7	0	0				
Seed, 20 loads, 18s. per load	18	0	0				
Reaping and leading, 10s. per acre	10	0	0				
Thrashing, &c. at 2s. per load	8	0	0				
Stubble mowing, 3s. per acre	3	0	0				
Rent and assessments	137	10	0				
	479	10	0				
Profit -	452	10	0				
	£932	0	0		£932	0	0

Errors excepted.

We will ſuppoſe the farm-houſes, barns, and buildings in general, together with the fences on the whole farm, to occupy by admeaſurement nine acres of land. There will then remain ten acres for ſupport of the cows, horſes, &c. The beſt method to make the ten acres anſwer that purpoſe will be to ſow three and a half of them with winter tares; two and a half with ſummer cabbages, and potatoes under them; and the remaining four with ſpring tares: or you may ſow part of them with buck-wheat. I mean thoſe ten acres to ſupply the place of the 59½ acres allowed for the ſame uſe in the Old Syſtem, always ſuppoſing in both caſes that the buildings, fences, &c. take up nine acres.

Theſe ten acres will moſt certainly coſt ſomething tilling and managing: but, if carefully looked after, they will maintain forty head of cattle and horſes in ſummer, with the aſſiſtance of chopped ſtraw, as before deſcribed: and the farmer will have one hundred and twenty acres of ſtraw, clover, &c. where he had before in the

old

old method only fifty-nine and a half; and he may be certain that every crop by this management will be more bulky, and his quantity of manure continually increaſe by keeping forty head of cattle and horſes in the fold, winter and ſummer, not to mention pigs. As the food I have recommended is too rich for breeding ſtock, if the farmer keeps ſix cows, as before mentioned, he will want twenty-ſix feeding beaſts, which may average at five guineas each; but much more may be made—he may make two returns. However, as the profits accruing by this method may appear incredible to thoſe who ſet their faces againſt any innovation or improvement, I will explain myſelf by a debtor and creditor account.

We will ſuppoſe the ten acres to be at firſt ſet with potatoes to make the land ready and clean for the tares, &c. Carry the profit on the potatoes to the general account, as it is part of the crop for the firſt year of the New Method.

New Syſtem on Ten Acres of Potatoes.

Dr. to EXPENCES.	£.	s.	d.	*Cr. by* PRODUCE.	£.	s.	d.
Ploughing 10 acres at 7s. per acre	3	10	0	By 10 acres, ſold at 10l. 10s. per acre	105	0	0
120 ſacks of potatoes for ſeed, at 3s. per ſack	18	0	0				
Harrowing at different times, 2s. per acre - -	1	0	0				
Ploughing up, at 5s. per acre	2	10	0				
Profit carried to the Gen. Account of one year's profit	80	0	0				
	£105	0	0		£105	0	0

N. B. The potatoe crop is ſuppoſed to be ſold on the land, as it is difficult to calculate expences when they are ſold by the farmer at market, or he would make more than double the ſum mentioned; for one hundred ſacks, at 3*s.* per ſack, would be 15*l.* per acre, which would be 150*l.*: but, if well ſet and managed, he would have an hundred and fifty ſacks per acre.

Ten Acres of Land, &c. managed by the New System.

Dr. to EXPENCES.	£.	s.	d.	*Cr. by* PRODUCE.	£.	s.	d.
3½ acres ploughing, harrowing and ſowing, at 7s. per acre	1	4	6	By the profit on 32 beaſts, at an average of 5l. 5s. per beaſt	168	0	0
Seed tares, 2 buſhels per ac. at 10s. per buſhel, and ½ peck of ryeat 6d. pr. peck	3	11	9				
1½ acre of cabbages, ploughing, &c. 7s. per acre	0	10	6				
2½ acres drilling, at 2s. 6d. per acre	0	6	3				
Plants which muſt be raiſed on a ſeed-bed, 4lb. of ſeed, at 6s. per lb. digging the garden and ſowing	1	9	0				
Planting, at 5s. per acre	0	12	6				
4 acres, 3 times ploughing and ſowing, at 7s. pr. ac.	4	4	0				
Manure for 10 acres every year, at 4 loads per acre, at 8s. per load	16	0	0				
Profit by this mode	140	1	6				
	£168	0	0		£168	0	0

The above balance of profit certainly appears great: but the uncommon quantity

of food the ten acres will ſupply by the tares and rye raiſed upon them (when chopped with wheat-ſtraw as before deſcribed) is really incredible to thoſe who have not given this method a fair trial. I have kept ten horſes thirteen months on ſix acres of wheat-ſcouge, and ſix acres of oats. From this it may eaſily be conceived, that ten acres of green fodder, with ten acres of wheat-ſtraw, will keep forty head of cattle and horſes during the ſummer. Forty acres of wheat-ſtraw, twenty acres of clover twice mown, twenty acres of barley-ſtraw, and twenty acres of pea-ſtraw, together with twenty acres of turnips, will eaſily keep thirty-two head of beaſts and eight horſes during the winter. No one can ſuppoſe that I mean the ten acres alone ſhould keep the number of the different cattle mentioned. I mean, that the produce of the ten acres appropriated to the raiſing of green fodder, if you mix it with the ſtraw and clover in manner as directed, and properly and regularly feed the cattle, will be found to anſwer the purpoſe, and render

every

every ſervice I have aſſerted it capable of performing.

Cabbages of the early kind will be ready to cut the beginning of June; and you may keep cutting all ſummer, as, before you have got through a certain quantity, the ſprouts of ſome will be ready to cut again. It is meant that theſe cabbages ſhould be given to ſuch beaſts as are in the beſt condition, or neareſt ready for market. When you have cut your winter tares and rye, ſavoy cabbages muſt be put in the land. You will mow your tares in ſummer; and the cabbages will ſerve the cattle in winter, and be ſoon enough removed from the ground to ſow it with tares in the ſpring. Where the ſpring cabbages grow, you muſt in autumn ſow winter tares in drills. Put in four or ſix loads of manure per acre to every crop. Theſe ten acres are, like a garden, continually to be covered with crops; I eſteem them as much a garden for the uſe of the cattle, as I do the kitchen-garden for the uſe of the family.

Although I have calculated twenty acres of turnips to be uſed for the feeding of cattle in the fold; they will not all be wanted, but one half, or perhaps more, may be eaten with ſheep. Therefore a profit will ariſe, of which no notice has here been taken. The quantity of manure calculated in the New Syſtem is very much leſs than will ariſe; but as the method is ſo new in this and in moſt other parts, I very much wiſh to avoid placing over much profit before the reader at once. Honey is a ſweet thing; but if I had never ſeen any, and by any chance had met with ſome in the trunk of a tree, I ſhould be afraid to taſte it: but if I at laſt ſhould venture and get one lick, I ſhould be inclined to taſte again; and when I found it both ſweet to my taſte, and wholeſome, I ſhould become fond of it. So much do I expect this new ſyſtem of farming will prove pleaſant to the farmer, when he once taſtes the ſweets of it. There is nothing ſweetens labour ſo much as an adequate reward; and method is the ſoul of all buſineſs.

By

By the rules laid down in this Treatiſe a farm becomes almoſt as productive as a garden; and I would ſtimulate every one to exert himſelf to follow them practice. I have been uſed to feed cattle upon the moſt fertile grounds in the county of Lincoln, but never could arrive at ſuch a ſtate of perfection as by this method. It may not be amiſs to obſerve, that in two different inſtances I have ſo well fattened two Scotch cows, that they had as much tallow within them, as they weighed per quarter, though they had been milked within ſix weeks of their being killed: the one weighed four ſtone per quarter, and had four ſtone of fat in her: the other nine ſtone per quarter, and had nine ſtone of fat in her.

Now ſuppoſe to the New Method we allow one man and one boy extra to look after the cattle, horſes, &c. We will eſtimate the man at 12 *s.* per week, and the boy at 6 *s.* per week. Though theſe wages may appear at firſt ſight rather extravagant, yet, as Sunday's attendance will be required for a part of the day at leaſt, we will be li-

beral in our pay : therefore, throwing away the odd day, the hours and minutes, and reckoning fifty-two weeks for the year, we have the ſum of 46*l.* 16*s.* to deduct, which will leave a balance of 405*l.* 14*s.* Now the profit by the Old Syſtem is 130*l.* 8*s.* 6*d.* which taken from 405*l.* 14*s.* leaves a net difference in profit in favour of the New Syſtem of 275*l.* 5*s.* 6*d.*

In the Old Syſtem we reckoned the profit of a horſe in two years ſixteen pounds, the half of which, taking only one year's, will be 8*l.* and of pigs, as before, 5*l.* Theſe ſums, added to 275*l.* 5*s.* 6*d.* will make in the aggregate 288*l.* 5*s.* 6*d.*

The 80*l.* for the potatoes only have been brought to account: but the net profit from the ten acres in green crops, being 140*l.* 1*s.* 6*d.* will make the aggregate ſum 348*l.* 7*s.* 0*d.* which appears a very large ſum: but by this method of cultivation and feeding of cattle, it will be found that manure will be made of ſo much better quality, and in ſuch plenty, and at ſo much cheaper rate than by buying, which has been the general practice

tice in this neighbourhood, that a farmer who lives four or ſix miles from a poſt or manufacturing town, will ſcarcely be at the trouble of fetching it; and manure, being the maſter-piece of all agriculture, will raiſe every crop to be ſo abundant as to give aſtoniſhment to the beholders of them.

There are ſeveral advantages in reſpect to ſituation attending this farm in the vicinity of Doncaſter, which from their locality will not apply to the other two farms I mean to treat of. I have from experience learned that garden-peas of the early ſort, ſet in the month of January as here before deſcribed, will be more productive than any field-peas, and always ſell at a better price, even if you harveſt them. But you have a chance of ſelling a part in the pods green, which may fetch twenty guineas per acre at the leaſt, and you may have a crop of turnips after with eaſe: but this crop of turnips has not been taken into the account. It may be ſaid the profit on the beaſts is laid too high; but I deny that to be the caſe, for the following reaſons. When you feed cattle on graſs, it

is poſſible that the ſeaſons may vary ſo much that the ſame paſture might keep double the number of cattle at one time to what it may be capable of at another. Therefore, as it is uſual to put in the ſame number every year, ſhould the ſeaſon prove dry, you probably will be overloaded with ſtock: if, on the contrary, it ſhould prove wet, you will be deficient in ſtock; and in either of theſe caſes you will be diſappointed. But with food provided in the manner deſcribed above, your green crops get ſo forward before the dry ſeaſon probably arrives, that they receive no injury; and by fold or ſtable-feeeding the animal, if choſen of the right ſort, to a certainty ſpeedily becomes fat. His food, his work, his reſt is regular, every day is the ſame; and every day will he increaſe, to the emolument of his owner. And as Rotherham market is within ſix miles, the farmer has an opportunity to ſell his own beaſts; and if the price offered for them proves not to his ſatisfaction, he can drive them home, and take them another day to market. A ſort

of

of jobbing buſineſs may be carried on by attending ſuch a market, to ſell in dear markets, and buy in cheap ones; and likewiſe the buſineſs of ſelling cows and calves, by buying in cows with calf, and keeping them to calve, to make fat the calves, and milk the cows a ſufficient time, and then fatten them. A crop of early potatoes may be raiſed on ſome part of the land intended for turnips, and ſold in time to have a crop of turnips after; and ſhould he be ſhort of his green crop, he has a crop of clover continually on the land, in ſummer, which ſecures him food for his cattle on a certainty. His farm is within the compaſs, that an induſtrious man may ſee that every part of his buſineſs is executed properly; and he does not require ſo ſtrong a team to carry his corn to market; nor need his ſervant be ſo long abſent from his home employ; and he ſcarcely can go to any market with his corn but he may bring coals back.

It is to be obſerved that in the foregoing calculations I have ſuppoſed all the plough-

ing, and ſowing, and leading, ſhould be hired and paid for. Theſe accounts, as drawn out, lean much in favour of the Old Syſtem, as the expences are fewer in number than will really be found in following that method. The calculations are made for the purpoſe of ſhewing at one view the great diſparity which actually will be found to exiſt in the practice of the two different methods, on ſimilar farms. As to aſcertaining the profits exactly, that is impoſſible; as the markets fluctuate in ſo great a degree, that no one can be correct in the valuation of cattle or corn for ſix months forward. I have conſtantly eſtimated the expences at a higher rate than I know they may be done at, that I might not be ſuppoſed to deal unfairly with the Old Method.

The ſecond farm I mean to treat of is, of the grazing, breeding, and ploughing kind. It is ſituated in Lincolnſhire, and conſiſts of three hundred and fourteen acres. Part of it is at preſent divided into four plats for

for ploughing, each plat conſiſting of twenty-four acres. There is an additional plat of the ſame kind of land, containing ſixteen acres*; and about fourteen acres of clay-land, which is alſo ploughed. Theſe, added together, make one hundred and twenty-ſix acres, all under plough according to the old management. If you ſubtract the one hundred and twenty-ſix acres from three hundred and fourteen, there will be a reſidue of one hundred and eighty-eight acres, which are all in graſs, and uſed for the purpoſe of raiſing one hundred and forty lambs, or tupping one hundred and forty ewes (as the hogs are ſold off in ſpring, and the drape ewes at Michaelmas), and keeping twelve horſes, and thirty beaſts. The rotation of crops here made uſe of is according to the old ſyſtem, as before obſerved, viz. turnips, barley, clover and wheat: and probably the method here followed may be as good as any other; as the farm is applied to the

* The four plats conſiſting of twenty-four acres each, and the plat of ſixteen acres, are of limeſtone: the reſt clay, and liable to rot ſheep.

breeding

breeding of ſheep, the moſt lucrative buſineſs the farmer can purſue. I will now ſtate a debtor and creditor account of the expences and produce of the farm, as now managed.

The preſent Rotation of Crops in a Year

Dr. to EXPENCES.	£.	s.	d.	*Cr. by PRODUCE.*	£.	s.	d.
FIRST PLAT.							
To fallowing 24 acres for turnips; 4 times ploughing, harrowing, &c. at 6*s.* per acre each	28	16	0	By 24 acres turnips, at 3*l.* 10*s.* per acre	84	0	0
12 Loads manure per acre, at 8*s.*	115	4	0	24 Acres barley, 4 quarters per acre, at 25*s.* per quarter	120	0	0
Seed and hoeing, 6*s.* per acre	7	4	0	24 Acres clover, 1½ ton per acre, 1*l.* per ton	36	0	0
SECOND.							
Ploughing 24 acres for barley, 7*s.* per acre	8	8	0	24 Acres clover eaten off, at 10*s.* 6*d.* per acre	12	12	0
Seed, four buſhels per acre, at 25*s.* per quarter	15	0	0	24 Acres wheat, 3 quarters per acre, at 2*l.* per quarter	144	0	0
Clover-ſeed, 14 lb. per acre, 6*d.* per lb.	8	8	0	16 Acres of cliff-land, which appear to be carried on in the ſame manner, but do not ſeem to be regular in any crop. Therefore I will			
Reaping and leading 6*s.* per acre	7	4	0				
Thraſhing &c. 96 quarters, at 1*s.* 4*d.* per quarter	6	8	0				
	£.396	12	0		£.396	12	0

Dr. to EXPENCES.	£.	s.	d.	*Cr. by PRODUCE.*	£.	s.	d.
Brt. over	196	12	0	Brt. over	396	12	0
THIRD.				take the average of its produce from the produce of the 96 acres above, which are regularly cropped (as the land is of the same kind); but being rather better, will say			
Clover, mowing &c. 24 acres, 3*s.* per acre	3	12	0	4*l.* 10*s.* per acre	72	0	0
FOURTH.				7 Acres of wheat on clay land, at 3 quarters per acre, at 2*l.* per quarter	42	0	0
24 Acres ploughing for wheat, 7*s.* per acre	8	8	0	7 Acres beans, on ditto, 3 quarters per acre, 1*l.* 4*s.* per quarter	25	4	0
Seed, 3 bushels per acre, at 5*s.* per bushel	18	0	0	65 Hogs (feeders) at 1*l.* 8*s.* each	91	0	0
Reaping and leading, 10*s.* per acre	12	0	0	50 Ewes (drape) at 1*l.* 8*s.* each	70	0	0
Thrashing, &c. 72 quarters, 1*s.* 8*d.* per quarter	6	0	0	200 Fleeces of wool, 1*l.* 1*s.* per tod, 4 fleeces to a tod	52	10	0
Stubble mowing, 3*s.* per acre	3	12	0	6 Fat beasts, 25*l.* each	150	0	0
Average expence upon the 16 acres of cliff land	43	1	0	2 Horses, at 20*l.* each	40	0	0
Fallowing $\frac{1}{3}$ of 14 acres of clay land	6	10	8	Pigs	10	0	0
Manure once in 3 years	16	16	0				
Rent and assessments	316	4	$4\frac{1}{2}$				
Profit	318	9	$11\frac{1}{2}$				
£.	949	6	0	£.	949	6	0
				Profit brt. down	318	9	$11\frac{1}{2}$

The New Syſtem on the Four Plats of Twenty-four Acres each, and Sixteen Acres,

Dr. to EXPENCES.	£.	s.	d.	*Cr. by* PRODUCE.	£.	s.	d.
FIRST PLAT.							
To ploughing &c. twice for turnips on 24 acres twitch &c. raking off, at 6*s.* per acre	14	8	0	By 24 acres of turnips, 3*l.* 10*s.* per acre	84	0	0
Drilling and ſowing, 2*s.* 6*d.* per acre	3	0	0	24 Acres barley, 4 quarters per acre, 1*l.* 5*s.* per quarter	120	0	0
Seed 1*s.* per acre	1	4	0	Clover eat by ſheep, carried to General Account			
Hoeing and 3 times ploughing, 1*s.*6*d.* per acre	5	8	0	24 Acres wheat, 3 quarters per acre, 2*l.* per quarter	144	0	0
6 Loads manure per acre, 8*s.* per load	57	12	0	16 Acres ſaintfoin, 2 ton per acre, 2*l.* per ton	64	0	0
SECOND.							
Ploughing &c. and ſowing 24 acres for barley, 7*s.* per acre	8	8	0				
Seed, four buſhels, at 25*s.* per quarter	15	0	0				
Red clover 14 lb. per acre, at 6*d.* per lb.: trefoil 6 lb. per acre, at 3*d* per lb.: white clover 6 lb. per acre, at 8*d.* per lb.	15	0	0				
Reaping and leading, 6*s.* per acre	7	4	0				
Thraſhing 96 quarters, at 1*s.* 4*d.* per quarter	6	8	0				
	£.133	12	0		£.412	0	0

Dr. to EXPENCE.	£.	s.	d.	*Cr. by PRODUCE.*	£.	s.	d.
Brt. over	133	12	0	Brt. over	412	0	0
THIRD.							
To clover 24 acres eaten by ſheep							
FOURTH.							
24 Acres wheat, ploughing &c. 7s. per acre	8	8	0				
Seed, 3 buſhels per acre, at 5s. per buſhel	18	0	0				
Reaping &c. 10s. per acre	12	0	0				
72 Quarters wheat, thraſhing, &c. 1s. 8d. per quarter	6	0	0				
Stubble mowing, 3s. per acre	3	12	0				
FIFTH.							
16 Acres ſaintfoin mowing, 3s. per acre	2	8	0				
Profit	228	0	0				
	£.412	0	0		£.412	0	0
				Profit brt. down	£228	0	0

The General Account of Expence and Produce on the New Syſtem on the Lincolnſhire Farm, of Eighty-four Acres, which at preſent rots Sheep,

Dr. to EXPENCES.	£.	s.	d.	*Cr. by PRODUCE.*	£.	s.	d.
FIRST.							
14 Acres wheat, ploughing, &c. 7s. per acre	4	18	0	By 14 acres of wheat, 3½ quarters per acre, at 2l. per quarter	98	0	0
Seed 3 buſhels per acre, 5s. per buſhel	10	10	0	14 Acres peas or beans, 4 quarters per acre, 1l. 4s. per quarter	67	4	0
Reaping, &c. 10s. per acre	7	0	0	14 Acres barley, 4 quarters per acre, at 1l. 5s. per qr.	70	0	0
Thraſhing, &c. 49 quarters, 1s. 8d. per quarter	4	1	8	14 Acres clover, 2½ tons per acre, at 2l. per ton	70	0	0
Stubble mowing, 3s. per acre	2	2	0	14 Acres wheat, 4 quarters per acre, 2l. per quarter	112	0	0
SECOND.				14 Acres beans, 4 quarters per acre, 1l. 4s. per quarter	67	4	0
14 Acres beans or peas ploughing, &c. 7s. per acre	4	18	0	Profit brought from the 4 plats	228	0	0
Drilling, 2s. 6d. per acre	1	15	0	Profit on beaſts, horſes, ſheep, wool, pigs &c. brought from Account in Old Syſtem, being the ſame in New	413	10	0
4 Loads manure per acre, 8s. per load	22	8	0				
3 Times ploughing, 1s. 4d. each per acre	2	16	0				
Reaping &c. 6s. per acre	4	4	0				
Thraſhing &c. 56 quarters, 1s. per quarter	2	16	0				
	£.67	8	8		£.1125	18	0

Dr. to EXPENCES.	£.	s.	d.	*Cr. by* PRODUCE.	£.	s.	d.
Brt. over	67	8	8	Brt. over	1125	18	0
THIRD.							
14 Acres barley, ploughing, 7*s.* per acre	4	18	0				
Seed, 4 buſhels per acre, 1*l.* 5*s.* per quarter	8	15	0				
Clover-ſeed, 14 lb. per acre, at 6*d.* per lb.: 6 lb. trefoil, 3*d.* per lb.	5	19	0				
Reaping and leading, 8*s.* per acre	5	12	0				
Thraſhing 56 quarters, 1*s.* 2*d.* per quarter	3	5	4				
FOURTH.							
14 Acres clover, mowing, &c. 6*s.* per acre	4	4	0				
6 Loads manure per acre, 8*s.* per load	33	12	0				
FIFTH.							
14 Acres wheat, ploughing, &c. 7*s.* per acre	4	18	0				
Seed, 3 buſhels per acre, 5*s.* per buſhel	10	10	0				
Reaping, &c. 10*s.* per acre	7	0	0				
Thraſhing, &c. 56 quarters, 1*s.* 8*d.* per quarter	4	13	4				
Stubble mowing, 3*s.* per acre	2	2	0				
	£.162	17	4		£.1125	18	0

Dr. to EXPENCES.	£.	s.	d.	*Cr. by PRODUCE.*	£.	s.	d.
Brt. over	162	17	4	Brt. over	1125	18	0
SIXTH.							
14 Acres beans, ploughing, &c. 7s. per acre	4	18	0				
Drilling, 2s. 6d. per acre	1	15	0				
6 Loads manure per acre, 8s. per load	33	12	0				
3 Times ploughing 1s. 6d. each per acre	3	3	0				
Reaping, thraſhing, &c.	7	0	0				
Rent and aſſeſſment as in the Old Syſtem Account	316	4	4½				
Profit	596	8	3½				
	£.1125	18	0		£.1125	18	0

ERRORS EXCEPTED.

Having thus ſtated the management of the Lincolnſhire farm according to the New Method; it is now neceſſary to give ſuch an elucidation as that the reader may perfectly underſtand it. What I propoſe is the following.

100 Acres of graſs, 3 ſheep to every two acres	150	*ſheep*
10 ditto for feeding beaſts, and a few tups	4	*tups*
72 ditto for ploughing (in three plats) as before deſcribed. Including		
24 ditto ſown with graſſes to keep ſheep upon, five to an acre	120	*ſheep*
	274	

84 ditto clay ſoil under rotation of crops.
16 ditto of ſaintfoin for hay.
8 ditto of meadow to cut green, for the purpoſe of ſoiling horſes in the fold or ſtable:

314 *acres.*

Which, as we have ſhown, is the moſt beneficial method of keeping them, and beyond compariſon preferable to letting them run over the graſs, if only for the benefit of the manure, which will be found of ſuch infinite value to the farm.

I ſhould keep on this farm at leaſt forty head of beaſts and horſes in the ſtable and

fold, winter and ſummer; but on ſuch a farm as this twice that number might be kept, and the manure made in ſummer with green food by this method would be found to be much better than the manure made in winter in the uſual way. Mixing ſtraw intimately in ſummer with graſs, clover, or any other green food, as before deſcribed, will certainly be applying the ſtraw to a much more profitable purpoſe than the preſent method of uſing it will admit of; and the cattle, inſtead of being poor and pining, would be kept in a thriving ſtate, and the manure be better in quality in proportion to their good condition. In winter an equal quantity of nutritious food ſhould be mixed with the ſtraw, ſuch as ſaintfoin or clover hay, potatoes or cabbages, which will preſerve the animals in a healthy ſtate, and cauſe them to increaſe in bulk and value.

It does not abſolutely follow that the farmer's cattle muſt be poor and pining, becauſe he has not immediately on his farm clover, tares, potatoes or cabbages, carrots, &c.; though alike neceſſary and pleaſant,

as well for his own uſe as that of his cattle. If, at his firſt entrance on a farm, he ſhould find it deſtitute of theſe neceſſary articles; by attention and a little art they may all be ſoon raiſed at a ſmall expence: and ſtall-feeding would be attended with much leſs expence than is generally apprehended, if a little care were taken in the management; for I am firmly of opinion that one man and a boy are ſufficient to look after forty head of cattle, to cut the ſtraw and mix it with their green food in ſummer, and with their hay in winter. But, ſuppoſing the cattle double that number, a machine worked by a horſe might be erected in ſome proper place, which might perform various operations, ſuch as thraſhing of corn, cutting of ſtraw, &c. Such a machine would at firſt coſt money; and the farmer muſt have a capital to ſpare to enable him to erect it: but he will ſtill have but *one* rent to pay for his farm, the produce will be doubled; his buſineſs will be near him, and his ſtock in a thriving ſtate; he feels himſelf comfortable, and is the admiration of his neighbours.

The diſagreeable circumſtance of the land rotting ſheep, the reader will obſerve, is done away by ploughing the eighty-four acres of clay-land, and eating the ſeeds, ſainfoin, eddiſh, &c. By ſtall-feeding the greateſt part of the horſes will be kept up; for nothing is ſo hurtful in rotting of ſheep on land, as horſes going upon it, or in fact to any other land, except perhaps when you turn a ſmall number of them into a cloſe; as horſes will eat ſome kinds of graſs which no other animals will touch: ſuch, for example, as grows againſt fences and by the ſides of footpaths. It will nevertheleſs be found a much better and cheaper method to keep them in folds, as before directed, than in paſtures, where they do more harm with their feet than with their mouths.

The number of ſheep will be increaſed ſeventy. Therefore, if my calculation is right, inſtead of ſelling the hogs, they may be kept for wethers. Should any danger be apprehended of the rot, add to the number of beaſts (which perhaps may turn out as profitable by having a greater quantity

tity in the fold), and keep only the old number of ſheep, viz. two hundred to clip: and the ſeeds in the ſpring ſhould be eaten up by four ſheep to an acre. I mean thoſe twenty-four acres, part of the ninety-ſix in the foregoing eſtimate, and which we calculated to maintain five ſheep by being ſown with ſeeds: but we will put the even number of one hundred upon theſe twenty-four acres; fifty of the beſt ſheeder hogs; and fifty of the beſt ſhearling ewes: only one hundred ſheep then remain, for one hundred acres of graſs-land: of courſe, there would be an opportunity of keeping many beaſts, or of meadowing ſome of the land.

It is the general cuſtom to ſell off the drape ewes. Now, by taking the lambs from them very early in the month of June, or in July at fartheſt, the ewes would have ſufficient time to get fat before winter, and then be ſold as fat ewes; and the ſixteen acres of ſaintfoin eddiſh would inſure a net profit on the ſheep ſuperior to what is generally made. The lambs might be taken to the ſaintfoin, which would preſerve

them ſound while the ewes are getting fat.

The Third Farm alluded to.

We ſhall now give a Dr. and Cr. Statement of a Rotation of Crops for ſix years on the Old Syſtem, uſed in a great many parts of Yorkſhire as the beſt. This is taken from an acre of land from an extenſive eſtate in the North Riding, conſiſting of ſeveral hundred acres of open tillage land.

Courſe of Huſbandry—One fallow and two crops, viz. 1ſt year fallow, manured—2nd year, barley—3d year, beans—4th year, fallow—5th year, wheat—6th year, oats.

Rotation of Crops for Six Years on the Old Syſtem.

Dr. to EXPENCES.				*Cr. by PRODUCE.*
1ſt YEAR, FALLOW.				
	£.	s.	d.	
To 4 ploughings and harrowings, &c. at 7s.	1	8	0	By no crop
12 Loads of manure, 8s. per load	4	16	0	
One year's rent	0	15	0	
Aſſeſſments	0	10	0	
Tythe	0	6	0	
	£.7	15	0	

Dr. to EXPENCES. | *Cr. by* PRODUCE.

	£.	s.	d.		£.	s.	d.
2d YEAR, BARLEY.							
To ploughing and harrowing	0	6	6	By 4 quarters of barley, at 1*l.* 5*s.*	5	0	0
Seed, 4 buſhels	0	12	6	Straw	1	0	0
Reaping and thraſhing	0	12	6				
Rent	0	15	0				
Aſſeſſment	0	10	0				
Tythe	0	6	0				
	£.3	2	6		£.6	0	0
3d YEAR, BEANS.							
To ploughing and harrowing	0	6	6	By 3 quarters of beans, at 1*l.* 12*s.* per quarter	4	16	0
Seed, 4 buſhels	0	16	0	Straw	1	0	0
Reaping and thraſhing	0	12	0				
Rent	0	15	0				
Aſſeſſments	0	10	0				
Tythe	0	6	0				
	£.3	5	6		£.5	16	0
4th YEAR, FALLOW.				By no crop			
To ploughing, three times harrowing &c.	1	1	0				
Rent	0	15	0				
Aſſeſſments	0	10	0				
Tythe	0	6	0				
	£.2	12	0				
5th YEAR, WHEAT.							
To ploughing	0	5	0	By 3 quarters of wheat, at 2*l.* 10*s.* per quarter	7	10	0
Seed-wheat, 3 buſhels	0	18	9	Straw	1	0	0
Rent	0	15	0				
Aſſeſſments	0	10	0				
Tythe	0	6	0				
Reaping and thraſhing	0	15	0				
	£.3	9	9		£.8	10	0

Dr. to EXPENCES.			*Cr. by PRODUCE.*		
6th YEAR, OATS.					
	£.	s. d.		£.	s. d.
To ploughing and harrowing	0	6 6	By 4 quarters of oats, at 16s. per quarter	3	4 0
Seed, 4 buſhels	0	8 0	Straw	1	0 0
Rent	0	15 0			
Aſſeſſment	0	10 0			
Tythe	0	6 0			
Reaping and leading	0	6 6			
Thraſhing	0	4 0			
	£.2	16 0		£.4	4 0
			Total of the Cr. ſide	£.24	10 0
			Total of the Dr. do.	23	0 9
			Profit on one acre of land for 6 years	£.1	9 3

A Rotation of Crops for ſix years, upon the ſame land as above, by the New Syſtem, as follows:—1ſt Year, turnip fallow—2nd year, barley—3d year, peas fallow—4th year, wheat or oats—5th year, clover—6th year, wheat.

Rotation of Crops for ſix Years by the New Syſtem

Dr. to EXPENCES.	£.	s.	d.	*Cr. by PRODUCE.*	£.	s.	d.
1ſt YEAR, TURNIPS.							
To ploughing 1½ inch deep	0	4	0	By turnips	4	0	0
Harrowing and raking	0	3	6				
Ploughing, harrowing and raking	0	7	6				
Ploughing and harrowing	0	5	0				
Making drills	0	2	6				
Leading refuſe	0	2	6				
Manure, 6 loads, at 8s. per load	2	8	0				
Rent and aſſeſſments	1	5	0				
Tythe	0	6	0				
Seed, and buſh harrowing	0	1	6				
Hoeing	0	1	0				
Ploughing 3 times	0	4	6				
	£.5	11	0		£.4	0	0

Dr. to EXPENCES.			*Cr. by* PRODUCE.		
2d YEAR, BARLEY.					
	£.	s. d.		£.	s. d.
To ploughing and harrowing	0	7 6	By barley, 4 quarters, at 1*l.* 5*s.* per quarter	5	0 0
Seed, 4 bushels	0	12 6	Straw	1	0 0
Rent and assessments	1	5 0			
Tythe	0	6 0			
Reaping and thrashing	0	12 0			
	£.3	3 0		£.6	0 0
3d YEAR, PEAS.					
To ploughing, harrowing and raking	0	7 6	By 4 quarters of peas, 1*l.* 12*s.* per quarter	6	8 0
Ploughing, harrowing and raking	0	7 6	Straw	1	0 0
Making drills	0	2 6			
Manure, 4 loads, at 8*s.* per load	1	12 0			
Bush-harrowing	0	0 3			
Seed, 4 bushels	0	16 0			
3 Times ploughing	0	4 6			
Reaping and thrashing	0	12 0			
Rent and assessments	1	5 0			
Tythe	0	6 0			
	£.5	13 3		£.7	8 0
4th YEAR, WHEAT.					
To scarifying and harrowing	0	3 0	By 3 quarters of wheat, 2*l.* 10*s.* per quarter	7	10 0
Ploughing and sowing	0	5 0	Straw	1	0 0
Seed-wheat, 3 bushels	0	18 9			
Rent and assessments	1	5 0			
Tythe	0	6 0			
Reaping and thrashing	0	15 0			
Clover-seed, 20 lb.	0	10 0			
	£.4	2 9		£.8	10 0

Dr. to EXPENCES.			*Cr. by* PRODUCE.		
5th YEAR, CLOVER.					
	£.	s. d.		£.	s. d.
To mowing and reaping	0	5 0	By 1½ ton of clover	6	0 0
Rent and aſſeſſments	1	5 0			
Tythe	0	6 0			
4 Loads manure, 8*s.* per load	1	12 0			
	£.3	8 0		£.6	0 0
6th YEAR, WHEAT.					
To ploughing and ſowing	0	6 6	By 4 quarters of wheat, at 2*l.* 10*s.* per quarter	10	0 0
Seed, 3 buſhels	0	18 9	Straw	1	0 0
Reaping and thraſhing	0	17 0			
Rent and aſſeſſments	1	5 0			
Tythe	0	6 0			
	£.3	13 3		£.11	0 0
			Total of the Cr. ſide	£.42	18 0
			Total of the Dr. do.	25	11 3
			Profit on one acre of land for ſix years	£.17	6 9

From the above calculations the reader will find, that by the old ſyſtem the farmer gets no more by his farm than 1*l.* 9*s.* 3*d.* profit upon one acre of land in ſix years, or 4*s.* and 10½*d.* per acre yearly. The expence of labour is calculated higher in the above

above ſtatement than it actually coſts him, or he could not pay his rent and maintain his family. Now the profit by the new ſyſtem is, in the ſame ſpace of time, 17*l.* 6*s.* 9*d.* which makes 2*l.* 17*s.* 9½*d.* yearly per acre, in the ſix years rotation of crops—more than 100 per cent. in favour of the new ſyſtem.

There is in the above eſtate an open paſture called the Horſe-car, which is let at 2*s.* 6*d.* per acre; and the tenants ſay it is of no ſervice to them: but, under proper cultivation, 5*l.* per acre yearly profit might be derived from it. Then the tenant may well be ſurpriſed when he is charged a new rent of 1*l.* 8*s.* per acre, though he now pays only 15*s.*; and indeed he is very high-rented according to the ſyſtem of agriculture he follows.

The loſs ſuſtained over two thouſand acres of land is 29,625*l.* in ſix years. If that number of acres were let at 1*l.* 8*s.* per acre, there would be an advance of 13*s.* per acre, which would raiſe the ſum of 7800*l.* for the tenants to pay in ſix years.

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That ſum deducted from 29,625*l.* will leave them a profit of 21,825*l.* Theſe calculations may ſtagger the reader; but they are founded on facts. By a proper rotation of crops, the above profits would ariſe to landlord and tenant, even without the advantage of green fodder in ſummer.

By a judicious management the farmers in Eaſt Lothian are enabled to pay 3*l.* and 4*l.* per acre. If a man who lives by gardening, were to dig his land one year in three; and in the third year raiſe no crop, he would be conſidered as a madman. But the two crops and a fallow are ſtill worſe; as it robs the land of one third of its manure. This may be called opening the eyes of the landlord: but it is likewiſe greatly to the tenant's advantage.

SECTION

SECTION XLVI.

The Author's Opinion upon a General Incloſure of Commons; proving Commons in their preſent State to be Nuiſances, and a great Injury to the Community at large.

SOME knowledge of commons will moſt probably be allowed me. The reader may recollect that in the Introduction to this Work I informed him of my having lived at Aſgaſby in Lincolnſhire: in conſequence of the farm I there occupied, I enjoyed a right of common on the *Eaſt* and *Weſt-Fen;* and I had ample opportunity of informing myſelf both as to the uſe and abuſe of commons, from being one of the land-jury at a court held twice in every year, once for the purpoſe of hearing complaints, and once for impoſing a fine for abuſes, ſuch as ſtocking without right, &c.

About Lady-day I ſent into the Weſt-Fen three hundred hogs (that is, ſheep one year old, which have never been ſhorn). I hired a ſhepherd

ſhepherd to attend them, and put them on the ſame walk the farmer uſed who occupied the farm prior to my coming to it. In leſs than a week, in ſpite of the care my own ſhepherd certainly took, my ſheep were diſperſed over a fen conſiſting of twelve thouſand acres.

Their diſperſion is eaſily accounted for. There always are near commons an induſtrious ingenious ſet of men, whoſe buſineſs it is to look after ſtock for hire, and often for men who have no right of common. But, be that as it may, the better the ſtock do under their care, the more employ they get. Therefore it becomes the intereſt of theſe ſhepherds to diſturb every neighbouring flock, to make more room for ſuch as are committed to them; and as they all have an intereſt to do the ſame thing, it becomes a combination of unjuſt doers. Men of this deſcription are awake while others of an oppoſite diſpoſition ſleep. Call upon any of theſe fellows in the day-time; if you find them at all, it muſt be in bed. They riſe with the owl, and, like that bird,

ſeek their prey by night. Late in the evening, one of theſe men mounts his horſe, and, accompanied by three or four dogs, goes amongſt your ſheep. He generally takes a few of thoſe under his care, by way of excuſe, and will drive half a dozen of them into the middle of your flock, when they have lain down to reſt for the night: he then ſets the dogs a-barking; your paſture ſheep, unuſed to ſuch alarms, riſe in a fright and run different ways. Having effectually diſperſed the flock, he collects his own ſheep, with the addition of as many of yours as he can drive away with them; and he takes care to remove them ſome miles from the ſpot. When your ſhepherd comes to the ground in the morning, expecting to find the ſheep where he left them over night, he is moſt ſadly diſappointed; ſcarce any of the flock being to be found. He enquires of other ſhepherds for his loſt ſheep. They, who are for the moſt part what is termed *up to the buſineſs*, in return aſk him the marks upon your ſheep; and, having received from him ſufficient information

mation to know them, will direct him any way but the right. The man probably rides about the whole day without meeting with the objects of his ſearch: both he and his horſe are ſorely fatigued by fruitleſsly wandering many miles. The peregrination is recommenced the next day, to as little purpoſe; for by that time it is moſt probable ſome part of the flock has been driven many miles another way: but in the courſe of a week more your ſheep will be ſo completely ſcattered, that you will have the ſatisfaction, ride which way you will, of ſeeing ſome of them.

Your ſhepherd may be one of whoſe honeſty and capacity you before have had ſufficient proofs, and in this reſpect no more to be blamed than yourſelf. He has only been a dupe to thoſe fellows who practiſe the trade of ſheep-herding for ſeveral maſters.

He tells you (which is moſt probably true) that he has taken every means in his power to keep your ſheep together; but they range ſo much that he muſt have an-

other horſe, and he muſt be allowed corn. By this time expences run high: the horſe, if ſold, would fetch leſs by four pounds from the violent exerciſe he has undergone; and you may add the ſhepherd's wages, and the keep of the horſe. But the miſchief does not end here. In June the ſheep are to be waſhed, and, when brought upon the farm, are found to have the ſcab: twenty are dead, and ten are miſſing. You have two hundred and ſeventy ſheep remaining of the three hundred. Several extra expences are incurred from many of your ſheep having been pounded, &c. Of thoſe which died the ſkins are nearly deſtroyed by dogs.

Now, we will ſuppoſe theſe ſheep to have been regularly joiſted on good graſs at 3*d.* per head per week, from Lady-day to the beginning of June—a period of ten weeks: that would amount to 37*l.* 10*s.* The ſhepherd's wages, at 12*s.* per week, comes to 6*l.* On the other hand, let us ſee what loſs we may have ſuffered by the ſheep put on the common during the ſame ſpace of time.

The

	£.	s.	d.
The ſhepherd's wages, at 12*s.* per week, will be - -	6	0	0
Corn for two horſes, each 8*s.* per week - - -	8	0	0
20 ſheep dead, at 25*s.* each	25	0	0
Loſs on two horſes decreaſed in value - - -	8	0	0
276 ſheep curing of ſcab, at 3*d.* per ſheep - -	3	9	0
276 ditto decreaſed in value from common keep, 5*s.* - -	69	0	0
Fines for ſheep pounded, &c. only eſtimated at 5*s.* - -	0	5	0
Loſſes and Expences -	£119	14	0
The whole expence of joiſting, or properly keeping the ſheep will be 37*l.* 10*s.* at 3*d.* per head per week: and adding the expence of the ſhepherd, which is certainly over rated at 6*l.* you have a total of	43	10	0
We will allow two ſheep loſt by death or accident, at 25*s.*	2	10	0
Suppoſe twenty-two ſkins, as they muſt have been torn by dogs, or otherwiſe damaged, ſold for	3	10	0
	£49	10	0

By ſubtracting the 49*l.* 10*s.* from 119*l.* 14*s.* you will have a balance of 70*l.* 4*s.* which is the leaſt profit you will reap from the difference of keeping three hundred ſheep in a proper manner inſtead of turning them upon the common. I have choſen the ten beſt weeks in the whole year for the purpoſe of ſtocking the commons mentioned; for, if you ſend ſheep there later, you will be ſtill a greater loſer. The commons will then be covered with innumerable flocks of geeſe.

In June numbers of cattle and horſes are turned looſe upon them; by which as much is loſt as by ſheep. The horſes get full of bots, or the ſmall needle-worms, or, in dry ſummers, of ſand. A horſe of mine, which had run upon the common in ſummer, died, and I was deſirous of knowing what occaſioned his death. On opening him, upwards of a peck of ſand was found in his great ſtomach or bag. In mild winters, horſes which have run the ſummer in the fens do beſt there in winter; for, as all horſes feeding on low grounds get the bots or grubs, which are natives of ſuch grounds; ſo, while the horſes continue there eating green

green food, the bots and worms do him little miſchief, as they will prefer that kind of nutriment to what they might get by preying upon the animal. But when the horſe quits graſs, and is taken to dry meat, the bots and worms begin to devour his viſcera. They gnaw his inteſtines, they conſume the chyle, and prevent the proper ſupply to the blood, which aſſumes much the ſame appearance as the blood of rotten ſheep. His head begins to ſwell; and ſo do his legs, and ſome get what is called the *felteric*. The greater the quantity of corn and dry meat you give him, the worſe he becomes; and the only method left to ſave him is to keep him on graſs. If you have carrots or potatoes, they would anſwer much better than corn or any dry food. I have loſt ſeveral horſes by this ſort of diſorder: from the deſire of collecting manure, I have put them into a ſtraw-fold, which I now know to be a certain method of diſpatching them quickly. Chopped ſtraw, which I have hitherto ſo ſtrongly recommended as the moſt wholeſome and cheap-

eſt food, is here rank poiſon—a proof that there is no rule without an exception, I have felt it to my coſt. When any of my horſes died of this diſtemper, or, in fact, of any other, I generally opened them by way of practice; and I have frequently found the principal ſtomach or *bag*, as the farriers term it, nearly eaten through by theſe deſtructive vermin: none which died of the bots but had the coat of the ſtomach nearly deſtroyed. If you turn beaſts upon a common, at a year old, and give them ſtraw in the winter, they will increaſe in age, but very little in ſize when three years old: conſequently there is little gain.

If I wanted to ſtock the Fen, I ſhould prefer doing ſo without having a right; for, by applying to one of the Fen ſhepherds, he would take a decent number at a cheap rate. I have known men have ſtock in the fen who had neither houſe nor land in the county. A Fen ſhepherd will render the qualified man's right of little value; and, whilſt he will aſſiſt in driving away ſtock legally put on the common, he will, if pro-

perly fee'd, be particularly careful of the property of ſtrangers. Now, were this common incloſed, it would produce an incredible quantity of corn, to the great benefit of the country at large: it would feed a vaſt number of cattle; and it would alſo afford employment for a number of perſons who now follow little buſineſs but that of thieving.

The draining of the ſwamps in ſo large a tract of flat country is a matter of the utmoſt importance in reſpect to the health of the inhabitants: and the neceſſary dividing of the land (ſuppoſing the whole to be incloſed) would by ditches nearly effect the purpoſe, and do it effectually with the aſſiſtance of a main drain and an outfall.

I have mentioned the beſt common in England: and even that common, I inſiſt upon it, is no better than a nuiſance. Commons are harbours and nurſeries for thieves. I was on the jury when three men were indicted at York aſſizes for ſtealing ſome ſheep from commons in Craven: and it came

came out in proof upon trial, that theſe men had dealt largely, though not poſſeſſed of a capital. Their trade was thieving: and they were ingenious men in their way, all of one family, father and two ſons. The eldeſt ſon paſſed for a jobber in ſheep: and the father, with the youngeſt ſon, lived nine miles diſtant from him. The eldeſt ſon collected a tolerable flock by ſtealing a ſingle ſheep from thoſe he was diſpoſed to favour; two or three from other people, and ſo on. He would likewiſe buy a few, then mix them all together, and drive them to the old man's farm. Theſe ſheep were but of ſmall value, worth from five to ſeven ſhillings each; which deterred the owners from incurring the expence of a proſecution: although many of the ſufferers knew where to find their property. Theſe men therefore followed the trade of ſheep-ſtealing with impunity. When one of the owners was aſked by the Judge, "why he did not ſwear to a certain ſheep when firſt he diſcovered it in the poſſeſſion of the old man;"

man ;" he anſwered, " he was afraid of the conſequences." On the Judge's enquiring what were the conſequences he meant ; he replied, " that he was afraid of incurring a heavy expence." They were all convicted.

Now, were theſe commons incloſed, ſuch men as have been juſt deſcribed could make no excuſe for treſpaſſing upon a perſon's property ; it would be more difficult to get amongſt another man's flock of ſheep, and they would be much more eaſily detected after a robbery. Prevention is allowed to be better than puniſhment : the breed of thieves—a breed with which this country is overſtocked—would be diminiſhed by incloſures : by incloſures would the national wealth be augmented, and of courſe benefit accrue to the community at large.

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SECTION XLVII.

Experiments in Agriculture, according to the New Syſtem.

IT will be remembered, that I have before recommended ſowing the garden peas in preference to the field peas. They are more likely to produce a good crop, becauſe they are more hardy than field peas. I put the early Charlton pearls, and the dwarf marrow-fats in the ground nearly at one time, and in the ſame manner in every reſpect as the Haſting pea, which I have found to get forward faſter than any other field pea. Garden-peas of all ſorts will, like turnips, thrive much better in the open field than in a garden; and the method laid down under the head *Pea-Fallow* is much ſuperior to what is generally practiſed by the gardeners.

I have had cabbages much more forward, and better in every reſpect, than what are

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to be found in gardens: at the ſame time they were treated, as explained under *Cabbage-Fallow.* Were this mode of culture attended to, it would create a greater plenty of vegetables, and in all probability reduce the price.

What has been ſaid of peas and cabbages, is equally applicable to beans. But the rooks are ſo fond of them, and deſtroy ſuch quantities, that the farmer may ſometimes be diſappointed of a good crop—a circumſtance which has happened to me; for I have found it impoſſible to keep theſe voracious birds off, although I had a woman conſtantly in the field for the purpoſe.

I had an excellent crop of onions, ſown broadcaſt, entirely managed by the plough and harrows.

The greateſt produce of wheat I have had has been upon fallow, from ſowing under furrow as near 1½ inch deep as it was poſſible to plough. The method is as follows: Harrow the land very fine, and then make a mark with the plough upon the place where the ridge is intended to be. Then

ſow

ſow the wheat, and turn a furrow over it. Then continue ſowing down the furrow after the plough. A boy or a girl is much better than a man or a woman for any of this ſort of work. By being nearer to the ground they are leſs liable to ſcatter the ſeed to one ſide of the furrow; for, if the wind blows, it is apt to miſs the part intended. A boy or girl will ſow an acre for 6*d.*; and if the ploughman be attentive, they may be made to do it in a very regular manner. It is eaſy to aſcertain the proper quantity for one furrow. Knowing the length of the lands and the width of the furrow intended to be ploughed, you may calculate the number of furrows in each acre. Then dividing by the number of furrows the quantity of wheat intended for each acre, the quotient will be the exact quantity for each furrow. There is a drill for this ſort of ſowing, but I have not ſeen it act. There is only one thing I diſlike in this method, viz. the danger of the ploughman's covering the wheat too deep; which is a very great fault. For the wheat either rots in

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the land and never gets up, or is liable to canker during the winter, in the ſame manner as you will ſee celery in a garden. The wire-worm often bears the blame. I have very minutely examined thoſe plants that are eaten in two: and in the winter I have very ſeldom found the worm; but very frequently the plant cut in two by the froſt and wet weather: and it may be obſerved that it is moſtly in very ſevere winters that wheat is deſtroyed by what is called wire-worms. Laſt winter I had nine acres all ſown with the ſame ſort of wheat; but the land differently treated. Of the nine acres there had been one acre and a half of peas for podding; with four loads of manure on it. In the midſt of theſe, half an acre of beans, with four loads of manure. There had been four acres of potatoes, with eighteen loads upon each acre—two acres and a half of peas, with four loads of manure per acre—and half an acre ſown broad-caſt with field-peas, and ſix loads of manure on it. The wire-worm, ſo called, was more or leſs deſtructive in proportion,

as more or leſs manure was laid on each part of the field. Where the beans had grown in the middle of the peas, there was a remarkably fine crop; but on both ſides, in ſome places, where the land was the moſt wet by nature, although very well griped and drained, more than half of the wheat was deſtroyed from want of a ſufficient quantity of manure to give vigour to the plants. Beans are generally ſuppoſed to impoveriſh land more than peas; yet, in the above experiment, the bean-land, although potatoes, another impoveriſher, had grown among the beans, produced by the aſſiſtance of the manure the beſt wheat. Indeed, on tillage-land, I have always found good manure properly applied to bear crops accordingly.

Experiments on a Farm at Sprodborough.

In the year 1792 I had only nine acres of land, on which I kept nine horſes, two cows, fourteen ſheep, and one hundred and thirty

thirty pigs; all fed with grains, except the ſheep. The ſheep, notwithſtanding their being intermixed with the reſt of the ſtock, became very fat. The lambs I ſold at 21*s.* per head; and ſome of them were afterwards ſold for breeding at 2*l.* 12*s.* 6*d.* a piece. One of the cows coſt 11*l.* with her calf in May: I ſold her in October for 13*l.* after taking her milk.

In the year 1792 I took a farm conſiſting of twenty-eight acres of paſture, at 4*l.* per acre—eighteen acres of tillage-land laid down with clover, at 28*s.* per acre—ten acres in graſs, at 26*s.* per acre—two acres in wheat, at 26*s.* per acre. The rent of the new farm was 152*l.* 6*s.* per year: that of the nine acres of graſs 3*l.* per acre. The whole was tytheable, except the twenty-eight acres of paſture. My method of grazing and cropping was as follows: The paſture of twenty-eight acres uſed to be regularly ſtocked by my predeceſſor with nineteen beaſts and four horſes, but no ſheep. I put into it twenty beaſts, fourteen horſes, twenty ewes, and twenty-ſeven lambs.

Finding it over-ſtocked, I took in the nine acres of meadows. I fattened forty beaſts in that ſummer. The twenty ewes and twenty-ſeven lambs paid 50*l.* 16*s.*—See the Agricultural Reports of Yorkſhire. The eighteen acres of clover were mown once—the ten acres of ſward ploughed up and ſown with oats—Clover bad—oats middling. Two acres of wheat, bad.

In the year 1793—In the feeding-paſture fourteen cows, thirty ewes, forty-ſix lambs, and fourteen horſes, which all did well as before—The eighteen acres, wheat; bad, only 210 buſhels—ten acres peas, good; —two acres of turnips, good; ſold at five guineas per acre.

In 1794—In the feeding-paſture fourteen cows, fourteen horſes, fifty ewes, and ſixty-four lambs. All did well—the lambs uncommonly good. In the eighteen acres, ſix acres of potatoes in drills three feet aſunder—the ſorts ſet, the kidney, ox-noble, manly, champion, red-apple, white-apple, and lemon, which produced a good crop — the ox-noble, ninety ſacks per

acre; the manly, eighty ditto; the red-apple, eighty ditto; the white, ſeventy ditto; the kidney, fifty ditto; the lemon, forty ditto. At one corner of the ſix acres was a piece of ſward I took from the high road, dug by the ſpade, and ſet with potatoes. Ten ſquare yards were planted in the lazy-bed method, and ten yards ſquare by digging the land and ſetting in drills, as is uſual: the land being all manured. The lazy-bed method raiſed ſixteen ſtone four pounds: the drills at eighteen inches aſunder, ſeven ſtone five pounds. From this experiment I have improved much in the manner of ſetting potatoes. The other twelve acres, oats; bad. The ten acres and two acres being put into one field; ſix acres of wheat, good: ſix acres barley, middling. The nine acres remained meadow.

In the year 1795 the uſual ſtock in the feeding-paſture. In this year I had a lamb that weighed twenty pounds per quarter when ſix months old—all the reſt uncommonly fat. Nine acres, meadow. Of the eighteen-acres field, ſix acres (where pota-

toes had grown the preceding year) wheat, good. The wheat was ſown under furrow an inch and half deep; except one acre, two inches and a half deep, which yielded leſs by nine buſhels per acre—the quantity ſown four buſhels on part of the five acres; on the other part, three buſhels—the latter the beſt wheat; but not much difference in yield—the quantity thirty buſhels per acre. In 1795 the ſmall worm did much damage in the wheat crops in the ear: mine was much affected. Six acres potatoes, ſet every furrow, as directed in this Work—four acres of the ſix ſown with rape among the potatoes. The ox-noble potatoe was planted on five of the acres; and the black-apple on one of them—theſe bad: the ox-noble, where the rape was not ſown, as good as ever I ſaw; one hundred and ninety ſacks per acre—where the rape was ſown with them, only fifty ſacks. The black apple, although no rape was ſown among them, produced only thirty ſacks. The black-apples ſuit wet land, being remarkably hard. I found, that by ſowing

rape

rape among them I had loſt one hundred and forty ſacks per acre; and I received only 2*l.* 10*s.* from feeding ſheep with the rape. The other ſix acres wheat, with the ſame quantity of manure as the ſix acres of potatoes, and three ploughings after the oats—produce eight buſhels leſs than on the ſix acres where potatoes had preceded the wheat. The twelve-acre field, oats—eight buſhels per acre ſown—the beſt crop I ever ſaw of the Tartarian ſort—ſix feet high regularly, and the thickeſt on the ground perhaps ever ſeen.

In the year 1796 I had in the feeding-paſture fourteen cows, fourteen horſes, fifty ewes, and ſixty-ſeven lambs. The ſuperfluous graſs was mown the greateſt part of ſummer, and given to the horſes in the ſtable. I found the cows and ſheep do much better. There was a Scotch cow amongſt them, which the May twelve months before coſt five guineas. She was with calf—ſold her calf for ſeventeen ſhillings when fat. The cow was a good milker, and was milked within ſix weeks of her being

killed—weighed thirty-ſix ſtone, nine ſtone of fat—ſold for ſixteen guineas. I have found, from repeated trials, that the ſmall Scotch cows conſume, on an average, one-fifth leſs than a large cow of the Tees-water kind. This year I had a calf, which at the age of thirteen weeks weighed nineteen ſtone twelve pounds and a half, and had ſucked no other cow but its own mother.—I increaſed my farm by nine acres, which had had oats the year before upon flag-land or ſward ploughed up. I raiſed on theſe nine acres the following crops: one acre and half of Charlton peas, very good—one rood of Windſor beans, bad—one rood of long-podded beans; bad crop, the rooks had eaten the ſeed. The long-pods yielded fifteen buſhels and a half; the Windſor, nine buſhels and a half. Potatoes under them, twenty-five ſacks—Two acres and an half of Haſting peas drilled; very good, forty buſhels per acre. Half an acre of field-peas ſown broad-caſt: good, produce fifteen buſhels. Four acres of potatoes; produce one hundred and ninety

ſacks

ſacks per acre. In the eighteen-acres field, ſix acres wheat, where potatoes grew the year before; good, forty-eight buſhels per acre—twelve acres of oats, middling. The twelve-acre field, wheat, good; thirty-two buſhels per acre. Theſe crops (except the oats, which were kept to cut for horſes, cows, &c.) were ſold on the ground for ten guineas per acre, and paid the purchaſer well. I had all the ſtraw, chaff, &c.

In 1797, in the month of May, I quitted this farm. At that time the nine acres, where potatoes, beans, &c. had grown the preceding year, were in wheat: every other land drilled by Mr. Cook himſelf, with one buſhel per acre; the reſt ſown broad-caſt with three buſhels per acre—the produce of that ſown boad-caſt about three to one more than that of the drilled. There was a very great crop of wheat by the broad-caſt. Of the eighteen acres, one acre and a half in cabbages, and potatoes under them—two acres in early potatoes—five acres and a half in garden peas—two acres in Haſting peas—ſix acres of potatoes, ox-nobles—one acre of

long-podded beans, with potatoes under them. The crop was ſold at 200*l.* in the month of May.

The greateſt part of the above experiments being treated of ſeparately in other parts of this Work, I have here only conciſely ſtated the rotation of crops. It may not be unneceſſary to obſerve, that, at the time I quitted the farm, the eighteen-acres field was a perfect garden, with ſcarcely a weed in it: but in the month of July a perfect wilderneſs; and I may venture to aſſert that, for want of beſtowing from 5*l.* to 10*l.* on the different crops, there was 100*l.* leſs profit derived from the field, than might have been expected if proper management had not been wanting. Moreover the land is in a rude improper ſtate for wheat; and in the old mode of agriculture will require a fallow. Therefore it will make the difference of the following ſum, in eighteen acres of land, in two years.

Loſs

Loſs for want of proper management this year 100l.—and expences of four ploughings to make the land ready for wheat next year, 24l. 12s. - - - -	£.124 12 0
Loſs of eighteen acres of wheat, at ſix quarters per acre, at 56s. per quarter, which might have grown on the land next ſummer, without fallow; deducting for ſeed and ſowing 18l. 18s. for ploughing, 5l. 6s. and for reaping, 9l.	179 10 0
	£.304 2 0
Deduct the ſum ſaved - - - -	10 10 0
Loſs in two years by an improper method of managing, on eighteen acres -	£293 12 0

The above ſtatement plainly ſhews how plans of improvement may be rendered abortive by neglect. It is ſomething like building a houſe and never finiſhing it. I have known the late Mr. Bakewell's ſheep bought by different people; and for want of care and management they have ſoon degenerated.

SECTION

SECTION XLVIII.

The proper Sort of Pigs; and the beſt Method of Breeding them.

PIGS are of various kinds; and the choice of the ſort ſhould be regulated by the treatment they are to receive. The Chineſe breed with ſhort ears are moſt profitable, when ſuffered to range at full liberty in woods: and even in paſtures, they will not only live, but get fat with graſs; but they will not thrive in the ſty or fold with grains or inferior food.

I tried ſome experiments on the Chineſe pigs. I had a moſt remarkably fat one of that breed. A gentleman who ſaw it, and who was famous for breeding that kind, ſent me a boar and two gelts. I kept the ſows for ſome time in a fold, with from fifty to a hundred of a ſort, which will be deſcribed hereafter: they were larger than the Chineſe, and weighed from twenty to twenty-

twenty-five ſtone each. Mine, though ſo much larger than the Chineſe breed, became fat, whilſt they remained lean. I then moved them, and gave them better food; when they ſoon became nice pigs, and paid well for the meat they ate. But although one was killed at the age of three years, ſhe weighed only ten ſtone: the other was killed when four years old, and ſhe weighed only twelve ſtone. It is to be obſerved, that the laſt-mentioned one was always the largeſt: it was not its being one year older than the other that gave it the advantage in weight; for theſe ſort of pigs ſoon arrive at their full growth, and the increaſe of weight is then according as the animal is more or leſs fat.

I have always found the Berkſhire pigs with a croſs of the Chineſe the beſt for all uſes. Such pigs, when full grown, will weigh thirty ſtone with a moderate quantity of food. I put up a very poor ſow, taken from her firſt litter of pigs, and which had been ſuffered to remain ſo long as to leave her ſcarce any thing but ſkin and bone:

bone: however, I determined to fatten her, becauſe ſhe had got a trick of killing fowls. The higheſt price bid me for her in this condition was one guinea and a half. I gave her nine buſhels of peas at 3*s.* 6*d.* per buſhel. When killed, ſhe weighed ſeventeen ſtone, and at that time pork fit for bacon was worth from 7*s.* to 7*s.* 6*d.* per ſtone: therefore, at 7*s.* per ſtone only, there was a clear profit of 2*l.* 16*s.* for the trouble of feeding. I have had many more proofs of the extraordinary thrift of pigs of this ſort, which I originally bred from a Berkſhire ſow and a Chineſe boar. The firſt of them, a ſow fed and killed at Burton-upon-Trent, was twenty-four inches wide upon the back, and weighed forty-ſeven ſtone. They may be ſaid to grow until they are two years old: but the growth of pigs, like that of other animals, depends upon the manner in which they are kept.

It will be found that, although pigs in ſome caſes are the moſt profitable animals, yet they ſeldom will pay for corn or any other kind of food which the farmer can diſpoſe

diſpoſe of at a good market. They eat what no other animals will touch: therefore, with a trifling addition of better food, they will thrive very well. To keep them on corn, the expence would ſoon exceed the profit expected. In fact, I know of no animal except a horſe that will pay for corn.—See Section XXXI. p. 165. and Section XXXVIII. p. 200.

SECTION XLIX.

Great Uſe of Pigs in Fold-yards.

PIGS not only pick up the refuſe of the fold-yard, and thrive upon it; but, beſides depoſiting their own dung, they rout the litter about in ſuch a manner as to break and ſhorten the ſtraw, from which, by chewing it, they derive nouriſhment. By routing and trampling over the yard, they mingle the materials, and cauſe the manure to imbibe an equal quantity of moiſture, in ſuch a manner as could ſcarcely be done by any other

other means; thus bringing it ſpeedily to perfection. I do not now ſpeak of the Chineſe breed: they are of little uſe in this reſpect, as they rout very little. Strong or large pigs of the Berkſhire or of the long-eared kind are the fitteſt for making manure in the fold-yard: And to cauſe them to do this properly, they ought to be kept in good condition, and one day in every week nothing given them to eat, by which means they would effectually turn the manure; for in a ſhort time pigs will be to feed in the folds, the thraſhing machine will leave nothing in the ſtraw for them to eat.

END OF THE FIRST VOLUME.